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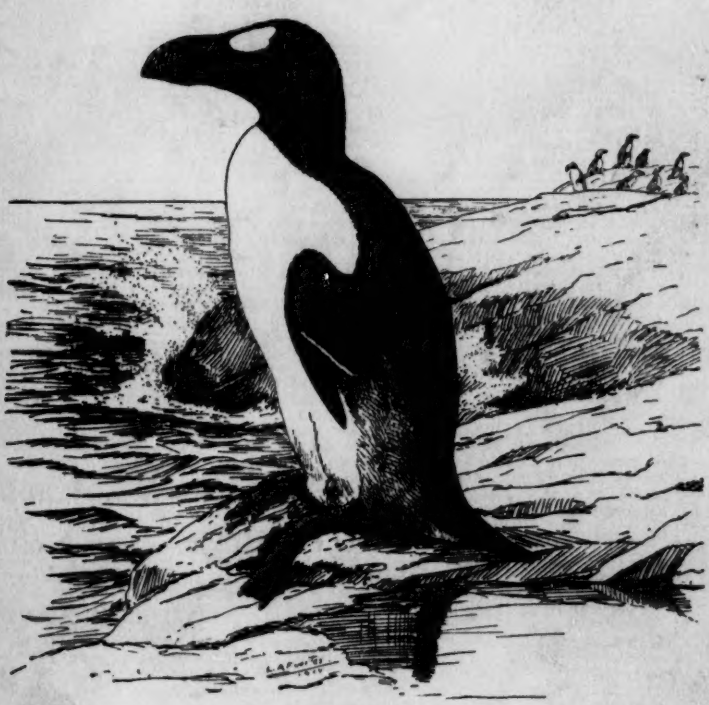

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Very truly yours
Robert Ridgway.

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ROBERT RIDGWAY: A MEMORIAL APPRECIATION.

BY HARRY C. OBERHOLSER.

Plate V.

IT IS impossible in words to do full justice to any one. So many and so diverse are the elements, known and unknown, that enter into the life of a human being, that to estimate the final result of a life would require more knowledge than is possible to any biographer. A friend unconsciously overestimates the good, just as an enemy depreciates it and emphasizes faults and failings. Accordingly, to appraise the life and services of a man like Robert Ridgway is doubly difficult. Notwithstanding this, we can, at least in recording our own impressions, pay a deserved tribute to his memory.

The facts of Robert Ridgway's life are so well known through the remarkable biography by Mr. Harry Harris published a few years ago[1] that it seems hardly necessary to reproduce these details here, except in small part as a text for the purposes of this writing. Rather is the present tribute a sympathetic attempt to appreciate Robert Ridgway as a scientist, as an artist, as a man, and as a friend.

Robert Ridgway was first and foremost an ornithologist, and it is safe to say that no American, except Spencer F. Baird, equaled him, all things considered, as a systematist in his field. We can scarcely realize the influence that he has exerted on systematic ornithology in America, and as a matter of fact, in the whole world. Just as Baird founded systematic ornithology in the New

[1] The Condor, Vol. XXX, No. 1, January 16, 1928, pp. 1–118.

World, just so surely did Ridgway develop and modernize and standardize the technique of the science.

Like most great ornithologists, Robert Ridgway early manifested a love for nature. Fortunately for him and for us, his parents were interested in the out-of-doors and encouraged him in his natural history activities. His boyhood striving after knowledge led to his contact with Spencer F. Baird, whose sympathetic interest at once met a cordial response from the young naturalist; and there rapidly grew up between them a friendship that lasted always. Through Baird, Robert Ridgway in due time obtained the opportunity that was the turning point of his life,—his appointment as zoölogist on the Clarence King expedition for the exploration of the 40th Parallel. On this, his first adventure away from home, he embarked when barely 17 years old, and even at this early age he quickly manifested his ability as a field naturalist. His report on the ornithological results of this expedition is one of the best of its kind, and shows not only his careful observation in the field, but an unusual breadth of treatment for a man of his years, and for the time in which it was written. In fact, it is still a valuable storehouse of information about birds of the western United States.

After his return from this expedition he went to Washington to work permanently under the direction of Professor Baird, and from this time on his progress was rapid. He soon became the head of the division of birds in the Smithsonian Institution, which position he held for more than fifty years. Without doubt his distaste for administrative duties was all that kept him from higher positions.

During this half-century period no important development in the science of ornithology in America was without his participation. To him perhaps more than any other individual is due the adoption of trinomials for scientific names of subspecies. He was influential in the formation of the American Ornithologists' Union, and in the formulation of its early policies, this alone a great service to ornithology. In fact, throughout his whole career his personal influence was felt in the development of ornithology in America.

His writings likewise form a conspicuous part of the ornithological literature of the period. In the three volumes of the 'History

of North American Birds' devoted to land birds, published in 1874, begun by Baird, Robert Ridgway had a conspicuous co-authorship; as well as in the later 'History of North American Water Birds,' appearing in 1884, for which two volumes he wrote a large part of the technical matter. These five volumes, it is almost superfluous to say, constituted for a long time the standard work on North American ornithology. The appearance of Ridgway's 'Nomenclature of North American Birds' in 1881, marked an epoch in the progress of ornithology in North America, for in this work he revised the nomenclature, and to a certain extent the classification, of the birds of this region. His 'Manual of North American Birds,' published in 1887, marked another advance, and this book continued for many years the technical authority on the subject.

The crowning scientific effort of his life was the now well-known 'Birds of North and Middle America,' the first volume of which appeared in 1901, the eighth in 1919, and on the remaining parts of which he was engaged at the time of his death. This great work, one of the finest large contributions to technical ornithological research ever made by a single man, was conceived as the carrying out of Professor Baird's 'Review of American Birds;' and on the synonymy alone Mr. Ridgway spent all of his available time for ten years.

So great and so important is this work that it has, in a measure, obscured his other contributions and accomplishments, for one unconsciously thinks of Robert Ridgway in terms of the 'Birds of North and Middle America.' However, during all the preceding years, and during the course of its preparation, a steady stream of smaller publications flowed from his pen, mostly descriptions of new genera, species, and subspecies, with revisions of generic and higher groups. Some of these, such as his 'New Classification of the North American Falconidae,' are osteological and taxonomic discussions of the nomenclature and status of genera and species. There are also articles on the geographic distribution and life history of species; and some, like his 'Relation Between Color and Geographic Distribution in Birds,' that treat of the principles of ecology. He wrote papers on local faunal ornithology, of which his two volume work on the 'Ornithology of Illinois' and the partly technical report on 'The Birds of the Galapagos Archipelago' are

the most conspicuous examples; and also many lists of species gathered by collectors, to which he added pertinent critical comments. Another sort of publication is his 'Hummingbirds,' published in 1892, which treats all the North American species of this group fully from both technical and life history standpoints, and which, at the time of its appearance, was a model of its kind.

So accustomed are we, however, to regard him as a technical writer that probably few persons today realize his ability in popular literature. One has only to read his 'Song Birds of the West,' which appeared in 'Harper's Magazine' in 1878, to realize his gift for charming description of the out-of-doors. In fact, one of his unfulfilled ambitions was to have leisure to write popular articles on the habits of birds, when ultimately his technical labors should have been completed. It is a far cry indeed from the fragrance of the woods and fields that his description of 'Bird Haven' brings, to the dry atmosphere of a 'New Classification of the North American Falconidae,' but these show the versatility of the man.

Most of Ridgway's publications relate to American birds, North and South, but he had a world-wide interest in ornithology, as is evidenced by such papers as his 'Report on Birds Collected by Dr. W. L. Abbott in Amirantes, Gloriosa, Assumption, Aldabra, and Adjacent Islands,' which appeared in 1896.

Not only was Robert Ridgway accomplished in field and museum ornithological work, but he was an excellent botanist as well. His interest in vegetation, particularly trees, led him early to make observations on the trees and other plants in the magnificent forest that formerly covered the bottomlands of the valley of the Wabash River in southwestern Indiana. The data that he gathered on the height of trees of different species still remain one of the most important sources of information on this subject. He also discovered new species of plants that were described by others.

Robert Ridgway was a bird lover as well as an ornithologist, and the two are, unfortunately, not always synonymous. One of his greatest pleasures, and incidentally of Mrs. Ridgway as well, was the attraction of birds to his home. On his place at Brookland, D. C., and later at Larchmound, his home in Olney, Illinois, he provided bird baths and feeding shelves for his feathered friends, and he delighted in watching their behavior while accepting his hospi-

tality. His love for trees and flowers led him to spend a considerable part of his personal income on the introduction and cultivation of trees and shrubs and other plants; and both his homes became veritable botanic gardens. He was a real conservationist and practiced as well as preached the protection of birds and plants. One of his greatest regrets was the destruction of the great trees in the Wabash Valley, that had so interested him in his early years.

After he had removed to Washington he always yearned for his early home at Mount Carmel, Illinois, and he embraced the first opportunity to return to southern Illinois to live. At such time he found that Mount Carmel was less attractive than Olney, not far away, and there he purchased the place that was his home for the later years of his life. In the hope of establishing a sanctuary for both birds and plants, particularly those of woody growth, he directed his efforts to improving another place near Olney, on which he had temporarily lived, and which he appropriately named 'Bird Haven.' On this plot of 18 acres of woodland and meadow he lavished his care; and it is a matter of satisfaction to bird and plant lovers as well as to Robert Ridgway's host of friends to know that this place, 'Bird Haven,' will be preserved as a permanent sanctuary and as a memorial to him.

Few persons today realize Mr. Ridgway's ability as a color artist, since his best paintings of birds appeared in books that now are only occasionally consulted, such as Nehrling's 'Our Birds of Song and Beauty,' Nelson's 'Contributions to the Natural History of Alaska,' and Turner's volume in the same series. As a matter of fact, his request to have identified a colored drawing of the purple finch was Professor Baird's first knowledge of him. His evident talent at once arrested Baird's attention, and the encouragement that he received from Baird undoubtedly had much to do with the subsequent development of his artistic ability. Robert Ridgway was drawing birds before he was ten years old, making his own colored pigments in his father's drug store.

It is unfortunate that the other activities of a very busy life caused him gradually to cease his painting, since the pictures of birds that he has left us show his unquestionable ability as a bird artist. He enjoyed painting birds, and more than once expressed the wish that he could some day again take up this phase of artistic work.

In one field, however, that of outline drawing of the external parts of birds, for the production of such illustrations as appeared in several of his books, notably the 'Manual of North American Birds,' and 'Birds of North and Middle America,' Ridgway's work has rarely, if ever, in accuracy and beauty been equaled, never excelled.

A student of color and a master of its use, he early realized that there was no satisfactory manual of color and color names suited to naturalists. This lack he endeavored to supply by the publication of his 'Nomenclature of Colors for Naturalists,' published in 1887, in which somewhat less than 200 colors were named. Not satisfied with this, he labored for more than twenty years on the scientific standardization of colors, and on January 16, 1913, he brought out his 'Color Standards and Color Nomenclature,' in which there were actually illustrated more than 1100 colors, with possibilities for the designation of some 6500 altogether. In this treatise, a thoroughly scientific classification of colors is for the first time proposed, which greatly facilitates the use of colors for all naturalists.

Men are judged commonly by two criteria—by what they do and by what they are. In any adequate estimate, it is not sufficient to recount what a man has accomplished, because his personal qualities so greatly influence his activities. No one who knew Robert Ridgway could fail to be impressed by his personality. In scientific work his outstanding traits were his insight, his industry, and his accuracy.

His broad knowledge of birds and his familiarity with their characters, in the gaining of which his drawing of birds greatly aided him, were as remarkable as his judgment, and enabled him to see almost at a glance what others less fortunate must needs discover by study. It was no unusual occurrence, when he was unpacking or examining new collections of birds, as they were received at the United States National Museum, for him to pick up a strange specimen and at once say that it was a new species, or that it was a new subspecies; and he was right in almost every case.

His capacity for work was amazing, and he labored day and night. While he was careful in making decisions in scientific problems, his mind and pen moved rapidly in the subsequent

development of his ideas. His power of concentration enabled him to accomplish much, often under disadvantageous circumstances and surroundings. It is difficult for us today, with our well lighted laboratory rooms and adequate series of specimens, to realize that much of Robert Ridgeway's early work was performed in crowded, poorly lighted quarters, and often with meager material for study. The marvel is, as with Baird, that his output in those days was so good, and that he made so few mistakes. Furthermore, I have seen him carry on a conversation with a visitor and at the same time write a complicated technical description of the plumage colors of a bird that he happened to have in hand, and which he was desirous of completing promptly. The interesting and astonishing features of this performance are the accuracy and almost incredible speed with which it was accomplished.

It is, therefore, hardly surprising that Mr. Ridgway's literary output was so large. While the number of his titles is not great—about 550—so many of his published works are of large size that the total number of his pages approximates 13,000, all written without the aid of typewriter or stenographer!

For one who worked so rapidly, Ridgway was unusually accurate. His work, like that of Spencer F. Baird, well stands the test of time, and his mistakes, considering the amount of his work, were few. In his descriptions of birds, he was of course, greatly aided by his experience and ability as an artist, for to reproduce a bird in picture form requires a much more minute and careful examination of details than does a mere written description.

Mr. Ridgway's interest in birds never flagged, though he appeared in the latter part of his life to tire of the labor involved in the technical work that has made his name a household word among systematic ornithologists.

In his contact with others, Robert Ridgway was always unassuming, gentle, and helpful. He disliked argument, and throughout his writings one finds very little of controversy. While he had his own convictions, never did he press them on others, and if he disagreed, he was content to state his side of the case and let it rest there. He was always open to conviction, and willingly acknowledged his mistakes. His deference to the wishes and opinions of others was one of his most conspicuous characteristics. So

retiring was he that he shrank from public appearance, and seldom spoke at public meetings. In fact, he would allow the American Ornithologists' Union to elect him its president only after he had received assurances that he never would have to preside at a meeting.

For a man of strong character he was unusually gentle, and in his unaffected manner was as considerate of a poor boy as he was of those of wealth or high position. In all my thirty-four years of personal intimacy with this truly remarkable man, I have never known him to speak an angry word or heard him express a really unkind feeling towards anyone. Relatively few persons knew him intimately, largely on account of his retiring disposition and his reluctance to do anything that might appear to be self-advertisement. To his real friends however, his companionship was a continual and inspiring delight: he was an entertaining talker when relating his own experiences or discussing subjects in which he was interested, but in keeping with his modest disposition he ever seemed much more willing to listen than to talk.

No trait of Robert Ridgway's will be longer remembered than his helpfulness. It is doubtful that there has ever been an ornithologist more genuinely and continually helpful to others in ornithological work than was he at all times. Generous to a fault, again and again when he learned that some one was working on a particular problem he would offer his own notes and data, sometimes almost complete, without thought of credit or acknowledgment, and urge the investigator to use them as his own. In fact, he was almost too generous for his own welfare.

This spirit of helpfulness, though valued by all, was especially important to young persons interested in natural history, for such individuals at all times found in him an encouraging and inspiring influence. It was no uncommon occurrence, when some one, even a boy, had come into the National Museum in search of information about birds, for him to stop in the midst of important investigations, sit down, and give his time to explanations and suggestions. He was always ready to help, and he gave without stint from his ample store of knowledge. It is, perhaps, not too much to say that no one interested in birds who ever came into contact with him failed to be helped. Furthermore, many of us are under too

great and lasting a debt to him ever to repay it, except in like manner to others. Notwithstanding the great monument that Robert Ridgway has reared to the science of ornithology, and incidentally to himself, in the thousands of his printed pages, we venture the assertion that his most enduring influence and greatest contribution to the world is the inspiration that he has given to others.

Highly though the world rates the personal impress of a man, even more highly did Robert Ridgway rate the uplift that he himself received from Mrs. Ridgway during the more than fifty happy years of their married life. Evelyn Ridgway was devoted to Robert Ridgway and to birds, and throughout her long companionship with her husband, her devotion to both continued to increase. The beauty of the home life of these two sympathetic persons was known to but a few of their most intimate friends, yet it was a sustaining and inspiring influence in Robert Ridgway's whole life. What he thought of Mrs. Ridgway is to be seen from his own pen in the article written for the 'Illinois Audubon Bulletin,' where his affection breathes through every line.

Notwithstanding his absorption in scientific work, Robert Ridgway had a well-developed sense of humor, and enjoyed a quiet joke. At no time, however, did he carry his fun to the point of unkindness, nor had it ever a sting. He enjoyed a joke on himself as well as one on another.

Were one to consider Robert Ridgway's whole character, one could describe him in a word, and that word—*gentle*man.

No one could have a better friend than Robert Ridgway. Hospitable, unselfish, and loyal, he made fast friends of those who were privileged to know him intimately. While he cared little for society in the commonly accepted sense of this term, in fact visited at the homes of others but seldom, he delighted to entertain his friends, however often they came. He was a charming, an ideal host, and no one ever visited him who did not long to return. To those of his friends who were interested in the out-of-doors, and most of them were, he never tired of showing the flowers and trees of his home grounds, and to explain his efforts to encourage the birds to use his place as a sanctuary. He always had some new and interesting phase of the out-of-doors to call to the attention of visitors, for he was continually making changes and improvements

about his home. It was evident to all that he thoroughly enjoyed entertaining his friends.

His unselfishness, apparent in his contact with everyone, was still more marked in the association with those who were close to him; in fact, nothing could be finer than his complete self-effacement when he could help a friend. His friends will doubtless never fully realize how much he did for them, nor how much they owe to his open-handed and heart-felt generosity.

To his other qualities he added a degree of loyalty that is rare, indeed. He was a man on whom a friend could count in adversity, or in any emergency: once established in his regard, one could be sure of his support and loyalty at all times. Perhaps this quality of his has attracted less attention than it should, because he was in this, as in everything, always quiet and unostentatious. An incident that shows, as well as anything could, his innate spirit of fidelity, occurred not long after he had been brought to Washington by Professor Baird. There came to him from the American Museum of Natural History in New York the offer of a position at a great advance in salary, with promise of further increase, but his loyalty to the man who had given him an opportunity to become an ornithologist impelled him to decline, much as this course seemed to be against his own best interest and future prospects.

The traits of his character were altogether so compelling that the admiration and affection of those who knew him could scarcely fail to be won by these. The esteem in which this quiet mild-mannered man was held by his neighbors is best shown by an occurrence on the day of his funeral at Olney, Illinois. Notwithstanding the fact that this took place on Saturday, the busiest day of the week, practically all business was suspended in town during the time of his funeral. This was a tribute, indeed.

The span of Robert Ridgway's life, from July 2, 1850, to March 25, 1929, covered a period of profound world changes and great advance in science and invention, as well as ever increasing activity in ornithological research. During his long life, his careful, painstaking work and his good judgment have helped to remove some of the stigma of superficiality that has, in some quarters, attached to ornithology,—a service in itself of no small importance.

His friendship with Spencer F. Baird and his loyalty to the man

who in his early life had so greatly inspired him is plainly evident from the account that Mr. Ridgway has himself given us of the circumstances that brought him first into contact with his Washington friend and benefactor. The beautiful and touching recital of these circumstances reveals, possibly more than anything else that Robert Ridgway has written, the intimate relationship between these two great men; and even to read this story is to receive inspiration for one's own efforts.

How much Mr. Ridgway was influenced by his contact with Baird it is difficult to say, but this impression we may surely know was profound. Robert Ridgway possessed the same genial disposition, the same scientific grasp of his subject, the same industry, the same dislike of public controversy, the same helpfulness to others. From Baird, he received his great inspiration, which he, in turn, has passed on to us of the present generation, and which, let us hope, we of today shall pass on to those who later shall take the torch from our hands.

Biological Survey
U. S. Dept. Agriculture, Washington, D. C.

AN INCUBATING WOODCOCK.

BY CLARENCE COTTAM AND LEON KELSO.

Plates VI and VII.

BECAUSE of its retiring and crepuscular habits, the Woodcock is not readily observed. Even though is is widely distributed and generally known in eastern North America, it is not intimately known. Many details concerning its domestic life during incubation and the rearing of young are yet to be observed.

While on a bird trip during the early afternoon of March 30, 1932, the writers had the good fortune to flush an incubating bird from its nest of four eggs, in South Washington, Arlington County, Va., about a mile south of the Highway Bridge. The nest was situated on a small hummock near the edge of a clearing at the base of a small tree (*Prunus* sp.) and under a tangled mass of blackberry vines, about eighteen inches from an infrequently used footpath. The nest was a mere hollow in the ground, well lined with a blanket of last year's leaves and twigs. It was situated on rather dry, high ground, about three rods from a small rain pool overgrown with blackberries. The pool was quite dry within a week after our first visit. The nearest stream or constantly damp feeding ground was more than 200 yards distant.

While frequent visits were made to the nest (fifteen in all), the mate of the incubating bird was encountered only at the time of our first visit, when it was flushed from the rain pool, and late one evening when it was heard giving its aërial mating song. On almost every visit the sitting bird faced in a different direction. Usually the small ends of the eggs were pointing inward, but three out of the eight times that the eggs were observed, one or two were pointing outward. Visits to the nest were usually made about 5 p. m. Only once was the bird found off the nest.

The incubating bird sat motionless while being observed. On one occasion its head was turned to one side when we approached. Even though she was photographed and twigs were removed from within ten inches of her head, she sat as still as a rock. Two ants crawled up her beak and over her head, barely missing her eye, yet

UPPER: NEST AND EGGS OF WOODCOCK. PHOTO BY WALLACE B. GRANGE.
LOWER: THREE YOUNG AND UNHATCHED EGG. PHOTO BY DR. PAUL BARTSCH.

UNIV. OF MICH.

the bird remained "frozen" and did not so much as blink an eye for the space of fifteen minutes.

At the end of the twenty-first day after the nest was found, three young were hatched. One egg did not hatch. Because the incubating bird sat practically as closely the first time we observed her as on any succeeding visit within the next two weeks, we were of the opinion that incubation had been in progress at least a day or two. This would indicate that the period is more than twenty-one days—the maximum time recorded for its incubation.

On our second visit the eggs were numbered, weighed, and measured, and seventeen days later they were reweighed. The following data were obtained:

No.	*Measurements in mm.*	*Weight in grams Apr. 1*	*Weight in grams Apr. 18*	*Loss in grams*	*Loss per cent*
1*	38.5 x 28.5	15.75	12.76	2.99	18.98
2	40.5 x 28.8	16.50	13.20	3.30	20.00
3	41.0 x 28.0	16.10	13.77	2.33	14.47
4	39.8 x 28.8	16.10	13.30	2.80	17.39

* No. 1 did not hatch, but contained an undeveloped embryo.

For the three eggs that hatched, there was an average loss of weight of 2.81 grams or 17.31 per cent during the seventeen day period.

Two of the eggs hatched forty-eight hours, and the other thirty-six hours, after the first cracks were noticed on the shells. All three young emerged the same afternoon.

A marked difference was noted in the behavior of the parent bird before and after the eggs were hatched. For nearly a week before the young hatched the incubating bird sat closely and would not leave without considerable disturbance. When touched, however, it would reluctantly leave the nest and slowly fly in characteristic zig zag fashion a short distance (often about fifty feet), alight, teeter up and down, run a few feet, and fly farther away. This was still characteristic of her flight when she left her emerging young about 10 a. m. on the twenty-first day. By four o'clock that afternoon, all three had emerged and were covered by the parent some thirty feet distant from the nest. One had not yet dried out. After a number of close-up pictures were taken she was touched. Suddenly she left with rather violent wing flaps and at

the same time uttered an alarm call. Even though she left the young in haste she flew slowly, feigning injury, and alighted some thirty-five feet away. The flight was somewhat sidewise, one wing extended slightly more forward and downward than the other. Both legs were dangling and the tail was spread. When alighting she fell over, then went crippling along with tail depressed and spread and wings dangling as if broken. Shortly she flew another thirty feet, feigning injury. The farther she was removed from her young, the less noticeable was the injury-feigning, even though we remained near the brood.

When the mother bird flew away the two strongest chicks scampered off in opposite directions, stopping occasionally in depressions among the dried leaves, where their protective coloration rendered them difficult to see. It was only with considerable difficulty that we could retrieve them from under the dense blackberry tangle, after which they were replaced in the nest and photographed. Twice the next day a careful and extended search was made, but neither parent nor young could be found.

The measurements of the young in millimeters were as follows:

Exposed culmen	*Wing*	*Tarsus*
13.5	17.75	17.00
12.5	17.50	16.75
13.0	17.50	17.75

It is interesting to note that the average length of the nestling tarsus was 55.26 per cent of the average length of the adult tarsus while the average length of the exposed culmen was 19.33 per cent of the average adult culmen, both as given by Ridgway.

No egg tooth was discernible; the color of the bill was dusky or blackish; the mouth lining was a dull flesh color. It was noted that each of the young had at least half of an earthworm adhering to the down, indicating that the first food received was the same as that of the adult.

The nesting material, although appearing scanty at first glance, was composed of over 600 larger pieces of twigs and leaves, besides innumerable pieces of fine shredded material. It consisted of about 55 per cent leaves, 40 per cent small twigs and 5 per cent grass. There appeared to be no careful selection of the type of dried material used, as the nest was composed of last year's leaves and

YOUNG WOODCOCK. PARENT WOODCOCK COVERING YOUNG.

PHOTOS BY DR. PAUL BARTSCH.

UNIV. OF MICH.

twigs of dominant plants in that neighborhood in about the proportion in which they existed. The nest was composed of the same material throughout except that finer material and more leaves served as a lining.

The following animal matter was found within the nest structure:

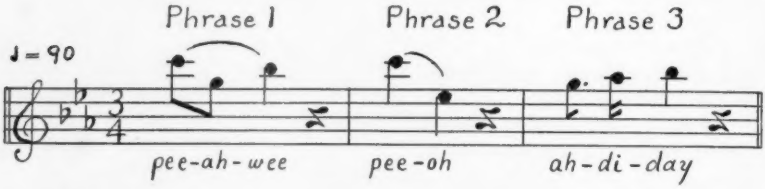
1 young (dead) *Vivipara contectoides* (Snail)
several egg cases and fragments of spiders of the family Clubionidae
fragments of 1 Attidae (spider)
4 mites
1 *Cyrtolobus* sp. (bug)
1 *Melanophthalma* sp. (beetle)
1 *Nodonota* sp. (beetle)
1 *Paria canella 4-notata* (beetle)
1 chrysalid of Noctuidae (moth)
fragments of another Lepidoptera chrysalis
4 larvae of Cecidomyiidae (small fly)
fragments of 1 pupa case of Amblytelinae (parasitic wasp)
2 *Lasius* sp. (ants).

Biological Survey,
U. S. Dept. Agriculture, Washington, D. C.

THE MUSIC OF THE WOOD PEWEE'S SONG AND ONE OF ITS LAWS.

BY WALLACE CRAIG.

THE Wood Pewee sings regularly three different phrases which have been represented as follows.

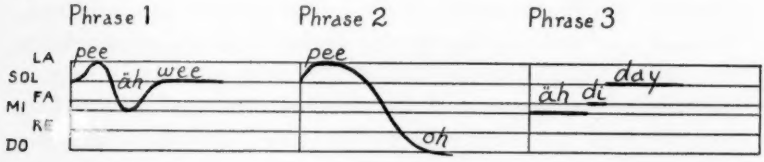


The phrases are all alike in tone, each being a clear, sweet whistle. Yet the three are not strictly coördinate: in melodic character, and also in mode of occurrence, phrases 1 and 2 resemble each other more closely than they resemble phrase 3. I shall try first to make clear the difference in melodic character between phrases 1 and 2 on the one hand, and phrase 3 on the other.

Phrases 1 and 2 are represented above in their simplest form. When most highly developed, each of them is more elaborate, beginning with a grace-note, as shown in the following notation. Phrase 3 has no such grace-notes.

Furthermore, in rendering phrase 3, the bird sings three distinct notes, each on one unchanging pitch. But in rendering phrase 1 or 2—always, whether he is singing the simple melody shown in the first musical notation, or the melody with grace-notes shown in the second musical notation—he glides from one pitch to the next with such perfect continuity that there are no distinct notes at all; the entire phrase is just one smooth glide. This

gliding or portamento rendition is suggested in the musical notation by the slur placed over the notes. But it can be represented more adequately by the graphic method, as seen in phrases 1 and 2 in the following graph. In this graph, the vertical dimension represents rise in pitch, the horizontal represents duration; the method of representation is essentially the same as that used by Mr. Saunders, but with several slight modifications; the syllables *pee-äh-wee*, etc., are copied from Mr. Saunders.[1] While the graph reveals the gliding character of phrases 1 and 2, it also shows, in sharp contrast, that there is no glide in phrase 3. This contrast is so important that it should be kept in mind always; in the following pages we shall often have occasion to speak of "the gliding phrases," meaning phrases 1 and 2, and "the non-gliding phrase," meaning phrase 3.



Now, the law which is the chief subject of this article may be stated very briefly thus: the faster the bird sings, the more 3's he sings. In other words: the faster the song, the greater is the percentage of non-gliding phrases. Some future student of the Wood Pewee's song will probably state this law in a more complicated form, in order to make it more precise mathematically. Our data are not sufficient for a very precise formulation, but they do give interesting evidence of the general truth of the law, and this evidence is of five different sorts which I shall present.

(1) The gliding phrases are sung all day long, thus constituting what has been named "the daytime singing." In this daytime singing, two phrases are never sung in immediate succession so as to form a continuous song. The bird sings one phrase, then remains silent for a long, indeterminate period before singing another isolated phrase. A few records of the daytime singing, taken at random, show not more than five or six phrases per minute.

[1] Bird Song. By Aretas A. Saunders. Albany, New York State Museum. 1929. See p. 169.

Phrase 3, the non-gliding phrase, does not occur in the daytime singing.[2] It occurs only in the remarkable "twilight song" which the Wood Pewee sings regularly in the morning twilight, and occasionally also in the evening twilight. This song consists of hundreds of phrases sung in immediate succession and in regular rhythm, ¾ time, as shown in our musical notations, thus constituting a continuous piece of music. This continuous composition is often a half-hour in length, and sometimes even longer. Its rhythm is such as to indicate that each phrase is sung with one expulsion of the breath, the quarter-rest at the end of the measure being used by the singer to draw his breath for the next phrase. The number of phrases per minute is about thirty, as contrasted with the five or six in the daytime singing. The phrases in the twilight song are 1's, 2's and 3's, following one another in varying order. There is always a goodly proportion of 3's. This fact, as compared with the fact that the daytime singing includes no 3's at all, shows clearly that the bird sings phrase 3 only in his more rapid song.

A preliminary account of the twilight song was published in 'The Auk'[3] six years ago, with a request that bird-observers make records of the song and send them to me. More than eighty persons volunteered to make records, and nineteen succeeded in doing so. These nineteen persons made 125 records, representing about 55 individual Wood Pewees, and containing a total of more than 80,000 phrases. I am deeply indebted to the bird-observers who thus furnished the basis for this study. The present paper is only a first report on the data; I hope to have ready soon a much longer paper, too long for publication in the 'The Auk.'

A word should be said as to the degree of precision of the mathematical statements. All enumerations of phrases, e. g., statements as to the percentage of 1's, 2's and 3's, are highly exact. But the statements involving time, e. g., the number of phrases per minute, are in most cases only rough approximations. The reason for this cannot be explained in this short article. The making of accurate time measurements is a problem which I am obliged to leave in

[2] In a few cases, observers report that they have heard phrase 3 in the daytime. But these cases are rare; and the phrase that was heard was apparently not exactly the regular phrase 3.

[3] The Twilight Song of the Wood Pewee: a Preliminary Statement. By Wallace Craig. Auk, vol. 43, pp. 150–152, April, 1926.

large part to future students of the Wood Pewee's song. Now I shall proceed to the second line of evidence.

(2) The twilight song proper is preceded by a short prelude, and usually followed by a postlude, which somewhat resemble the daytime singing. That is to say, in the prelude and the postlude there are long rests between phrases, and there are few or no 3's—only 1's and 2's. This is a second line of evidence showing clearly that when the Wood Pewee sings with long rests between phrases, his phrases are all of the gliding variety.

(3) Within the twilight song proper, as a rule, the 3's are introduced gradually; the proportion of 3's rises to a maximum, remains near the maximum throughout the middle part of the song, and gradually declines toward the end. And the data (although, as stated before, the data on this point are not mathematically precise) indicate that there is a parallel change in the rate of singing, as measured by the number of phrases per minute.

(4) There are great differences between individuals. The maximum proportion of 3's at the culminating point of the twilight song varies, for different individuals, from 25% to 57%, and this seems to be correlated with differences in the rate of singing as measured by the number of phrases per minute. Calculation of this correlation for 23 individuals gives $r = .594$, with P. E. = .091. Mathematically this correlation is fairly good, and it is possible that a still higher correlation will be found when there are more complete data concerning time.

(5) It would be interesting to know whether there is a similar correlation in regard to the twilight songs sung on successive mornings by the same individual. Assuming that every Wood Pewee sings a little slower some mornings and a little faster other mornings, the question is: Does he sing the highest proportion of 3's on the mornings when he sings most rapidly? It is difficult to get any answer to this question, because, for one thing, each individual Wood Pewee generally sings very much the same song on successive mornings; the day-to-day variation is too slight to furnish the basis for a correlation table. The bird whose maximum proportion of 3's is 25% sings this same percentage morning after morning; and the bird with 57% of 3's is equally consistent. Among all our birds there was just one (the second individual observed by

Prof. Yanney in Ohio) who sang on six different mornings, from June 23 to July 31, with enough variation to supply a basis for a correlation table. The data in this one case are such that they favor, but do not conclusively prove the hypothesis that this bird sang the highest proportion of 3's on the mornings when he sang at the most rapid rate.

The five lines of evidence may be summed up in this way. Under (1) and (2) the data are abundant and show clearly that when the Wood Pewee is singing most slowly, i. e., with long rests between phrases, he sings no 3's at all. The evidence under (3), (4) and (5) calls for further study to make it precise and conclusive, but it all does favor the thesis that the faster the Pewee sings, the more 3's he sings.

This thesis is interesting because it appears to state a musical law, not a simply mechanical law. If it had been found that phrase 3, which marks the bird's more rapid singing, was shorter than the other two phrases, that fact might have been attributed to the mere mechanics of the respiratory organs. But phrase 3 is not shorter than the others. As I have represented them, the three phrases are equal. As Mr. Saunders[4] has represented them, phrase 3 is equal to phrase 1 and it is longer than phrase 2. The essential difference between phrase 3 and the other phrases is of a musical character; and it is the same sort of difference that is found in human compositions between the character of rapid and that of slow music.[5] Remember that phrase 3 is the non-gliding, the other two are the gliding phrases. Phrase 3 is comparatively energetic, with emphasis on rhythm. The other two phrases are flowing, languorous, with emphasis on the melodic factor, not on the rhythmic. During the long ages of evolution, the Wood Pewee's rapid song has evolved a phrase musically suited to rapid singing, while his deliberate song has evolved two phrases musically suitable for deliberate singing. This is one line of evidence indicating that, within the limits of his small intelligence, the Wood Pewee is a true musician.

P. O. Box 554, Brookline, Mass.

[4] Loc. cit.

[5] Evolution of the Art of Music. By C. Hubert H. Parry. N. Y., Appleton, 1906. See pp. 9–10.

NOTES ON THE BIRDS OF JERUSALEM.

BY R. W. SHEPPARD.

To THE student of religious history and to the archaeologist the territory around Jerusalem must always hold great interest; but it is perhaps not so generally recognized that the bare stony mountains, terraced hillsides and olive groves of this same region hold most unusual and intensely interesting attractions for the ornithologist or the casual observer of bird life.

Here in this mountainous, historical country, roughly within a fifteen miles radius of the Holy City, may be found many diverse forms of bird life representative of three separate continental faunas, European, Asiatic and African.

During the winter months of December, January and February this Judean hill country, two to three thousand feet above sea level, is apt to be cold, wet and somewhat desolate looking; but, from the beginning of March, when great masses of flowers begin to appear on the hillsides, until the end of May when things commence to scorch up, vegetation, in the form of flowering plants, grasses and low growing shrubs, if not exactly luxuriant, is nevertheless abundant in the valleys and on the lower hills.

Throughout these six months, from the beginning of December until the end of May, being the time the writer was in this part of the country, birds were found to be more or less plentiful under nearly all conditions of weather and environment.

One of the most abundant and conspicuous of the small birds to be met with in the vicinity of Jerusalem during the winter months, is the White Wagtail (*Motacilla alba*). From December until about the middle of March, this species is to be found in small flocks and scattered parties on all the bare stony hill-sides and, during bad weather, it was most entertaining to watch their fearlessness in coming around camping areas and other human habitations for, when the wind and rain were at their worst, these cheerful little black and white exponents of perpetual motion would become so bold that they would scarcely hesitate to enter our tent or bivouac shelters in search of food.

Another bird which is very common on all the hillsides, is the Crested Lark (*Alauda cristata*) and, although perhaps not so conspicuous as the species just mentioned, it is probably the most numerous and generally distributed bird in the country for it is everywhere abundant and even on the most barren mountain summits the Crested Lark appears to find sustinence.

A small party of the finch-like Desert Lark (*Ammomanes deserti*) was met with, on one occasion, feeding on the slope of a sandy mountain overlooking the plains of Jerico; but we are inclined to believe that this is a comparatively rare species in the Judean hill country, although possibly common enough in the adjacent Jordan Valley.

In the barren rock strewn country bordering the roads leading north from the city of Jerusalem, the Black Redstart (*Ruticilla titys*), a handsome bird with black body and bright reddish-chestnut tail, is occasionally to be seen and the rare glimpses of this species, together with the more frequent occurrence of a black and white chat probably referable to the species *Saxicola lugens*, does much to cheer the ornithologist on his way over these stony roads in mid-winter. Later on, toward the end of February, another black and white Chat (*Saxicola melanoleuca*) becomes very numerous and is to be met with everywhere among the bare stony mountains. It was noticed to be especially numerous in the immediate vicinity of Jerusalem and on the terraced mountains north of the village of Ramah; becoming, at that time, one of the most conspicuous small birds in the country.

Another small bird which appears to be quite numerous, is the common European Linnet (*Acanthis cannabina*). This species was found to be more or less generally distributed over the mountainous country during the early months of the year when it is to be met with in wandering flocks and small parties which appear to favor the more open hillsides and the broad valleys where large tracts of land have been cultivated for growing barley or other grains.

Several other common European finches were observed; the Greenfinch (*Ligurinus chloris*) being not at all uncommon in gardens on the outskirts of Jerusalem where it appeared to show great partiality for the Italian Cypress and, in fact, was seldom seen to frequent any other species of tree; whilst the Goldfinch

(*Carduelis elegans*) was occasionally encountered, toward the end of January, feeding in large flocks among the young plantations of coniferous trees in the vicinity of the Mount of Olives. Later in the season, as spring advanced, Goldfinches were frequently seen, in pairs or small parties, among the olive groves in the valleys.

Although not by any means a common bird, the Chaffinch (*Fringilla coelebs*) was also occasionally met with in the olive groves and, early in the year, a few were noticed associating with the Goldfinches in the coniferous plantations near the Mount of Olives. Another finch, which was found to be quite common in the olive groves during the spring months, was the Meadow Bunting (*Emberiza cia*) a species which was also found to favour the terraced slopes of the hills, being especially partial to those which were well cultivated. Toward the end of March, one other bunting, the Corn Bunting (*Emberiza emberiza*), appeared in great numbers and, at this time, its somewhat monotonous song was very much in evidence in the valleys of the hills immediately above the plains of Jerico.

In and around the city of Jerusalem, the common House Sparrow (*Passer domesticus*) was found in large numbers whilst every small town and village or other human habitation appeared to have its quota of this ubiquitous species. The Starling (*Sturnus vulgaris*), which is now so widely distributed over both eastern and western hemispheres as to be associated with the House Sparrow as one of the world's commonest birds, was occasionally noticed during the winter months, in small flocks or parties, in the outskirts or suburbs of the holy city.

Among other common European birds, observed in this country, the Great or Oxe-eye Tit (*Parus major*) was frequently heard and occasionally seen in the olive groves while, on one occasion only, the Robin Redbreast (*Erithaca rubecula*) was met with in a sheltered valley, near the village of Enab, some six or seven miles northwest of Jerusalem.

The swallow family appears to be well represented in Judea, both in summer and winter; a fortunate circumstance in view of the general prevalence of flies. One species, the Oriental Swallow (*Hirundo savignii*) was met with in the vicinity of most of the towns and villages and was common in and around Jerusalem

during the winter months. During the periods of wet and stormy weather, which occur somewhat frequently in January and February and often last for several days at a time, these swallows disappeared to return again at each succeeding period of warm sunny weather. The frequent disappearance and re-appearance of these Swallows, although at first a little puzzling, was later explained by the close proximity of the Jordan Valley to which deep depression, with its tropical heat, these entirely insectivorous birds appeared to retire, before the mountain storms, to seek the warmth and abundant insect life which is perennially found in these sheltered plains.

The European Chimney Swallow (*Hirundo rustica*), which closely resembles the preceding species, put in an appearance quite early in the spring and was later to be found in the neighbourhood of nearly all the towns and villages; while on one occasion only, on a day in the month of May, a pair of Red-rumped Swallows (*Hirundo rufula*) were seen flying up and down the course of a stream which flowed through a deep ravine in the vicinity of the village of Ain Arik.

Of the two other species of the swallow family, which were recorded in my notes from this part of Judea; the Sand Martin (*Cotile riparia*) was occasionally observed, in the vicinity of Jerusalem, during the early Spring months; while, a little later, the Crag Martin (*Cotile rupestris*) was met with in fairly large numbers in the ravines and dry water courses which intersect the mountains in the district between the Jerusalem-Jerico road and the plains of Jerico.

Probably owing to the general lack of shade trees and other suitable cover, birds of the warbler group are far from being plentiful; but the Chiffchaff (*Phylloscopus minor*) was quite frequently observed among the olive groves during the late winter and early spring months, while on mild sunny days, toward the end of January, numbers were to be seen feeding in the young coniferous plantations and in the almond and fig trees which are scattered here and there over the hills in the neighbourhood of the Mount of Olives.

One Rufous Warbler (*Aedon galactodes*), or more probably the eastern form known as the Grey-backed Warbler (*Aedon familiaris*),

was observed, in somewhat thick cover, on the lower western slopes of the mountains and close to a road winding down into Ludd a village in the maritime plains.

That beautiful bird the Blue Rock Thrush (*Monticola cyanus*) was met with on one occasion only when a few were found inhabiting the cliffs of a very deep gorge among the mountains to the northwest of the plains of Jerico. The birds were observed and their wonderfully sweet song was heard from the ledges below us whilst lying on the edge of the cliff and watching, through field glasses, the movements of a tribe of cave dwelling Arabs on the opposite side of the gorge. The exquisite song of this bird is perhaps heard to the best advantage in this romantic setting of flower decked mountain wilderness.

Although the majority of the species mentioned, so far, as inhabiting this Judean hill country are more or less typically European in character, one species the Palestine Bulbul (*Pycnonotus xanthopygos*), which was met with among the fruit trees in the gardens of the village of Ain Arik, is decidedly Asiatic in character, and is very similar in general appearance to the better known Red-vented Bulbul of India.

The crow family is represented in the country around Jerusalem by the rather handsome black and grey Hooded Crow (*Corvus cornix*); the Syrian Rook (*Corvus agricola*); and the Common Jackdaw (*Coloeus monedula*). The former species is to be met with everywhere among the hill country, becoming very numerous in localities where there is an abundance of carrion, such as in the immediate neighbourhood of towns or villages. The second species, the Syrian Rook, is not an uncommon bird in the vicinity of the city of Jerusalem where they were usually seen in pairs or small parties which appeared to be partial to the neighbourhood of olive groves. The groves outside the northern walls of the old city, near the Mount of Olives, were much frequented by this bird. The third species, the Jackdaw, does not appear to be a particularly common bird in Judea, but a few individuals were seen, from time to time, frequenting the hills above the plains of Jerico.

The well-known Cuckoo (*Cuculus canorus*), so popular in England and continental Europe as a harbinger of spring, would appear to travel through Palestine in one of the lines of flight from its

winter home in Africa; for, about the beginning of April, it was repeatedly heard and occasionally seen among the hills west of Jerico; while, a little later on, it was found to be very much in evidence among the plantations of fig and olive trees on the terraced mountains, to the north of the village of Ramali.

Two species of swift were noted: the Common European Swift (*Cypselus apus*) which was observed in small flocks, on several occasions, during the month of April, and the Alpine or White-bellied Swift (*Cypselus melba*) which was found to be very numerous in the early spring, at which time it was found in large numbers flying low down over the grassy hills to the northwest of the Dead Sea. Like the swallows of Jerusalem, this bird also appeared to desert the hills for the sheltered Jordan Valley at the first sign of rain or storm.

Birds of prey, such as eagles, hawks, vultures, and owls, appear to be always very much in evidence throughout the Judean hill country. Of the last mentioned group, the Southern Little Owl (*Athene glaux*) was found to be not uncommon in the vicinity of Jerusalem where it frequents the olive groves and probably preys upon the small birds which are always to be found there, such as Goldfinches, Great Tits and Meadow Buntings.

Another owl, the Short-eared Owl (*Asio flammeus*) would appear to be extremely numerous everywhere among the more open hillsides for here its weird, persistent, cat-like call can be heard from sunset to sunrise of almost any night unless the weather be exceptionally stormy.

As would be expected in a country where dead animals are left to lie where they have fallen by the road-side, and powerful odours are of little moment, vultures and kites find conditions much to their liking and here, in this promised land, appear to have waxed fat and multiplied.

Two species of vulture and two species of kite were commonly met with and of these the large Griffon Vulture (*Gyps fulvus*) was quite frequently observed gathering over dead camels or mules, while the smaller Egyptian Vulture (*Neophron percnopterus*) appeared in great numbers, during the spring and early summer, in the country between Jerusalem and Jerico, becoming increasingly numerous in the vicinity of the latter city.

Of the two kites, the Red Kite (*Milvus ictinus*) was found to be extremely numerous almost everywhere and frequented the outskirts of Jerusalem in large numbers; while the Black Kite (*Milvus migrans*), although frequently seen, was certainly much less plentiful than its red congener.

A large eagle, most probably the Golden Eagle (*Aquila chrysaetos*) or possibly the Imperial Eagle (*Aquila heliaca*), was observed on a number of occasions, hunting in pairs over the mountainous country. They were noticed to be of especially frequent occurrence in the rugged country bordering the Jerusalem-Jerico road and among the grassy hills to the northwest of the Dead Sea, where they apparently feed upon hares and partridges which are very numerous in the last mentioned locality.

Two species of buzzard were noted, one which was taken to be the Long-legged Buzzard (*Buteo ferox*) was to be met with in varying numbers almost anywhere in the Judean country, but were particularly noticeable in the localities especially favoured by the Golden or Imperial Eagles; while the other, undoubtedly the Honey Buzzard (*Pernis apivorus*), was found to be not uncommon in the more fertile areas during the spring months.

One other member of the hawk family to be observed, and the only small hawk or falcon noted in this country, was the European Kestrel (*Cerchneis tinnunculus*) which appeared to be abundant everywhere and was usually seen hunting in pairs.

The Judean hill country does not appear to be particularly well favoured by game-birds, but a variety of the Red-legged Chukar Partridge (*Caccabis chukar*), which is so well known to sportsmen in India, was to be found everywhere over the mountains north and east of Jerusalem. This fine partridge becomes quite abundant on the grassy hills overlooking the Jordan Valley and the Dead Sea; while in this same district there would seem every reason to believe that the Houbara Bustard (*Houbara undulata*) is occasionally to be found for on one occasion, early in March, a glimpse was obtained, through field glasses, of a large bird which appeared to be an adult cock of this species.

A pigeon of the *Columba livia* group, and probably referable to *Columba schimperi*, was found to be not uncommon in the vicinity of those valleys which are more or less cultivated every season by

wandering tribes of Beduin Arabs; while a large flock of this same pigeon was observed in the deep ravine which has been previously mentioned in the account of the Blue Rock Thrush.

Toward the end of March or early in April, vast flocks of the common White Stork (*Ciconia alba*) were seen making their way slowly in a northerly direction up the valley of the Jordan while occasionally smaller parties were observed to break off from the main body and, after flying around in large circles for some considerable time, make off in a northwesterly direction over the Judean hills.

Later on in the spring or early summer, White Storks were frequently seen, either singly or in small scattered parties, feeding on the slopes of the hills bordering the Jerusalem-Jerico road.

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A COLLECTION SHOWING FOOD EATEN BY BIRDS.

BY EMERSON A. STONER.

Plate VIII.

THE educational possibilities ensuing from a collection of the stomach contents of birds arranged in a presentable manner first came to my attention some seven years ago. A drawer of my egg cabinet at that time held a few cardboard pill boxes, the contents of which proved of no little interest to my visitors. Among these boxes was one which held a considerable quantity of rice in the husks, which I had removed from the stomach and gullet of a Wood Duck which had been killed in the rice fields of the Sacramento Valley; these grains and husks being in fully as perfect condition as though they had been gathered by hand. Another pill box contained the skull and major bones of a meadow mouse (*Microtus*) taken from a Barn Owl. Another held many segments and mandibles of some 43 Jerusalem crickets (*Stenopelmatus*) which had been the meal of a Pacific Horned Owl.

These and other specimens which were accumulated later, I transferred from the pill boxes to glass-covered boxes filled with cotton, such as are shown in the illustration, thus protecting the specimens from dust, breakage, insects and disarrangement.

It is surprising how many items of stomach contents can be preserved simply by drying. A survey of my collection shows the following parts preservable with but little preparation:

1. Mammals
   (a) Teeth
   (b) Claws
   (c) Skull
   (d) Other bones
   (e) Fur

2. Birds
   (a) Bill
   (b) Feet and claws
   (c) Skull
   (d) Other bones
   (e) Feathers

3. Insects
   (a) Entire insect
   (b) Leg segments
   (c) Wing cases
   (d) Other parts, such as mandibles, heads, etc.

4. Vegetation
   (a) Small hard berries
   (b) Nuts, acorns, etc.
   (c) Seeds and grains
   (d) Miscellaneous, as grasses, flower-heads, etc.

5. Other material

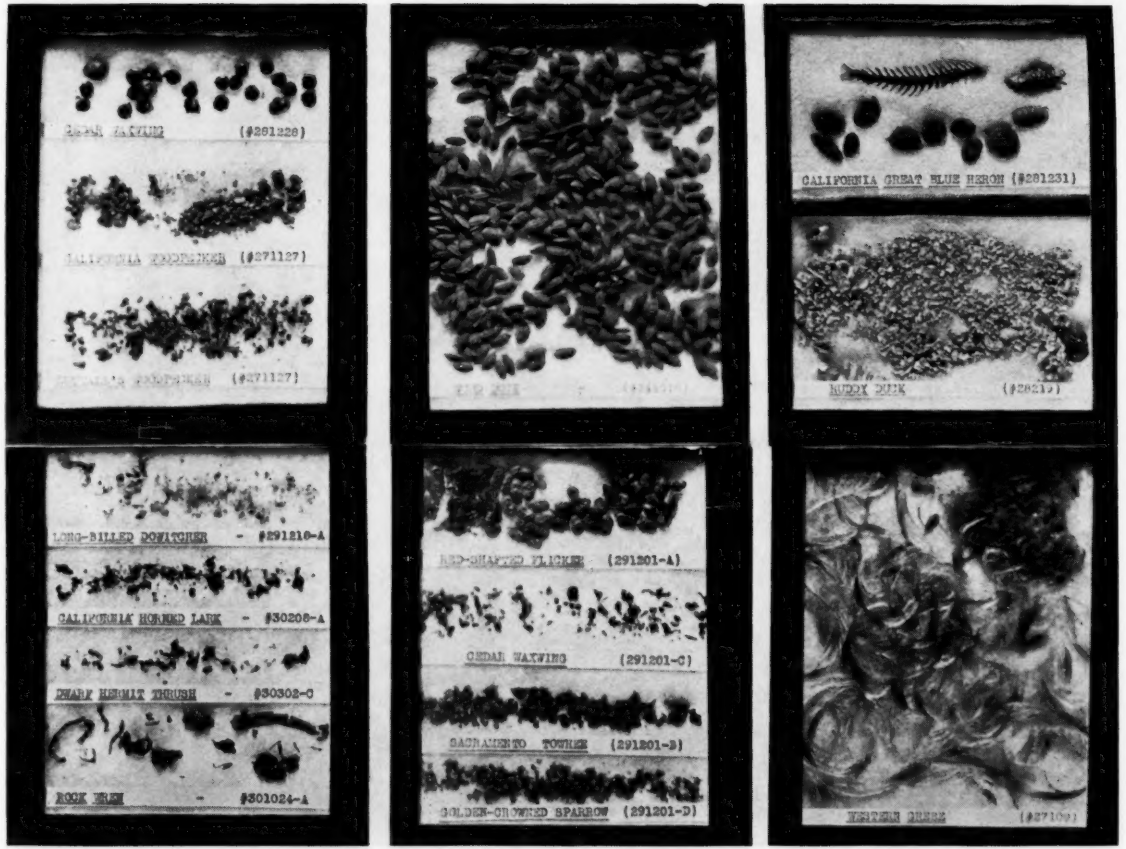
(a) Fish bones
(b) Snake bones and skin
(c) Shells and barnacles
(d) Gravel
(e) Miscellaneous

The bones of birds and mammals are very often found to be already cleaned by the digestive processes. Should there be flesh on the bones, it can be removed by scraping, or boiling and then scraping. Boiling in a solution of water and peroxide will whiten bones making them quite presentable. Pieces of animal skin with fur I have tanned to keep them soft and pliable. A little powdered arsenic sprinkled lightly on insect or other animal matter will preserve it from insect attacks.

The contents of each stomach should be kept separate, and labelled with the name of the bird and a reference number to the note book in which is kept the record of date, locality, and other notes in connection with the obtaining of the bird. Too many data open to view along with the specimens, in my opinion, detracts attention from the exhibit itself, while full data readily available for further reference, either in the note book or on the bottom of the box, or both, offer an ideal arrangement.

Now as to the source of specimens for such a collection. While, of course, these must of necessity come from dead birds, personally I would not advocate the killing of any bird for the sole purpose of increasing the collection. What specimens I have are the result of investigations made upon birds found already dead, those brought to me by friends and persons who know I am interested in bird study, and a few which I take for preparation into scientific skins. Of the birds found already dead, no small number may be found along the highways, after having met accidental death in the traffic; there are others killed and left by irresponsible hunters; some killed by a severe cold spell, by collision with telephone wires and similar obstructions, by poison campaigns, etc. All too often a hawk is found hanging on a fence,—mute evidence of what is usually an illegal and ignominious act.

With reference to the identification of material removed from stomachs, this analysis is not always a simple matter as there is required the knowledge necessary to identify not only birds, but mammals, insects, botanical material, etc., while there is often only



GLASS-COVERED BOXES OF STOMACH CONTENTS.

a portion of the object to be identified. Among the material that I have collected I have found that a good portion, at least in a general way, can be identified, especially if one is familiar with the country from which the bird came. The food of two Red-tailed Hawks, is found to consist of ground squirrels, identifiable by the bones, teeth, fur and an entire claw; also there is an entire Jerusalem cricket and an extra mandible, and three gopher teeth. A Prairie Falcon had eaten two birds, one identifiable from the feathers as a Red-shafted Flicker, and the other by the feathers, bill, feet and claws, as a Song Sparrow. A California Great Blue Heron had fed upon a small fish, two pill bugs (*Isopoda*), and several balls of fur indicating a small mammal. A Cedar Waxwing had fed upon berries from a pepper tree. A Red-Shafted Flicker had fed upon poison oak berries exclusively. A Ruddy Duck had eaten barnacles, one whole, and many broken, with a few pieces of gravel to aid digestion. The Western Grebe stomach contained many of the bird's own feathers,—a peculiar but characteristic trait of the grebes,—and a few small fish bones. A Rock Wren held a single grasshopper in segments. A Western Mourning Dove collected from a grape vineyard held only grape seeds. The above identifications were not at all difficult. However, in cases where there is doubt, submission of the specimens to the proper department of one of the universities or government bureaus will usually furnish the information desired.

It is admitted that some items of food cannot be preserved in the manner referred to herein. If these are identifiable, however, such items can be listed in the notes. Examination of such a collection evokes much interest among persons who would not take the trouble to read an itemized list of foods eaten by different birds. This awakening of interest might be stated as the main object of almost any exhibit collection,—to assist in disclosing the secrets and bringing the wonders of nature to the attention of the public. And, of course, there is also the fund of information which comes first hand to the collector himself.

Benicia, California.

ADDITIONS TO THE VIRGINIA AVIFAUNA SINCE 1890.

BY JAMES J. MURRAY.

THE year 1890 is important in the history of Virginia ornithology, for the only scientific catalogue of the birds of the State appeared in that year. This work was entitled, 'A Catalogue of the Birds of the Virginias,' and the author was William Cabell Rives, formerly of Albemarle County, Virginia, and now of Washington, D. C. Strange to say, the book was published not in Virginia but at Newport, Rhode Island, as Document VII of the 'Proceedings of the Newport Natural History Society.' It was a book of one hundred pages, issued only in wrappers, and is now out of print and very scarce. It covered the birds of both of the Virginias, more space being given to Virginia and few species being listed only from West Virginia. The work contained an historical account of early books of travel which mention Virginia birds and a bibliography of the more important papers on the subject from 1862 to 1890. An introductory section, admirably done, treated of the geographical divisions and faunal zones of the area, while the body of the book provided a carefully annotated list of the birds of the two states. In this catalogue 305 [= 304] species were included, with an additional hypothetical list of 40. In a review of the book in 'The Auk,' Mr. C. F. Batchelder said of it: "This catalogue of the birds of Virginia and West Virginia is so admirably proportioned and so carefully worked out in its details, that it will serve as a model for works of its kind."

This catalogue was all that could be desired in its day. Indeed it would be hard now to suggest any improvement in its method without considerably enlarging its scope. But forty-two years have passed, and the work is now out of date. No list of the birds of the State of Virginia as a whole has been published during that time. 'The Birds of Virginia,' by Harold H. Bailey (J. P. Bell Co., Lynchburg, Va., 1913, pp. xxiii + 362), contains a mass of valuable material, but it is not a state list, as it treats only of breeding birds and is largely limited to the tidewater region and a few sections of the mountains. During the period since 1890 much work has been

done in Virginia. The ornithologists of the National Museum and of the U. S. Biological Survey have covered the section of Virginia which borders the District of Columbia in an intensive fashion, and the results of their work appear in a very valuable publication, 'The Birds of the Washington, D. C. Region,' by Miss May T. Cooke (Proc. Biol. Soc. Wash., Vol. XLII, 1929, pp. 1–80). Of the papers on Virginia birds which have appeared in 'The Auk' during this time the most important are the two articles in the issues of October, 1912, and January, 1927, by Dr. E. A. Smyth, Jr., on the birds of Montgomery County, in the western part of the State. Various ornithologists have made visits to points along the coast, particularly to Cobb's and Smith's Islands, and have published their observations. The amateur ornithologists who are members of the Virginia Society of Ornithology have gathered a great deal of information on distribution and migration.

Not only have many additional species been added to the avifauna of the State since 1890, but our knowledge of the range of the more common species has been greatly extended. There seems now to be a definite need for a revised catalogue of the birds of Virginia, a need which the Virginia Society of Ornithology hopes to supply. The present paper, as a step in that direction, seeks to present a revision of Dr. Rives' list, with the addition of the new species recorded in Virginia since 1890.

1. REMOVALS FROM RIVES' LIST.

It would seem that the following 13 species should be removed from the 1890 list of Virginia birds:

Kittiwake, which is No. 7 on Rives' list. Dr. Rives tells me that he is now uncertain about this record. No specimen has ever been taken in Virginia, nor do I know of any sight records since 1890.

Wood Ibis, No. 60, which was only recorded in this list from West Virginia.

Sandhill Crane, No. 71, which was only recorded from West Virginia, and from a District of Columbia specimen.

Belted Piping Plover, No. 109, which is not now recognized by the A. O. U. 'Check-List' as a distinct form.

Prairie Hen, No. 115. This record of a bird killed near Washington is not now accepted in the District of Columbia list, as it is ascertained to have been a bird liberated from captivity.

Swallow-tailed Kite, No. 120, which was only recorded in Rives' list from West Virginia, and on the basis of a general statement from Audubon as to Virginia.

American Goshawk, No. 124, which was only included on the basis of a general statement by Coues and Prentiss that it is "occasionally observed near Washington."

Golden Eagle, No. 129, which was only included on the basis of a statement by Coues and Prentiss that it is "apparently not very rare near Washington in winter."

Yellow-headed Blackbird, No. 177, which was only recorded from West Virginia.

Pine Grosbeak, No. 186, which was included on the basis of a record near Washington which is not now accepted in the District of Columbia list.

White-winged Crossbill, No. 189, included on the basis of a statement that it is an "accidental winter visitor or straggler near Washington," with no specific data for Virginia.

Loggerhead Shrike, No. 230. The 1931 'Check-List' only includes one shrike, the Migrant, in the territory of Virginia. The Migrant Shrike Rives included under the name of White-rumped Shrike, a name which is now reserved for a western form. It is not unlikely that the Loggerhead Shrike will yet be reported from southeastern Virginia.

Brewster's Warbler, No. 244, which is a hybrid.

Six of these removals, as we shall see, are to be restored by later records. After these thirteen removals the Virginia list would stand at 291.

One species, the Carolina Paroquet, which Dr. Rives names (page 64) but does not number, should be included in the count since it was formerly not uncommon in Virginia, and was seen as late as 1865 (The Auk, V, 2, 148). This would bring the list to 292.

2. New Species Recorded From Virginia Since 1890.

The writer has been able to find data for the occurrence of 48 additional species in Virginia since 1890. The list is probably not complete, although the pertinent literature has been searched rather carefully. Five of these are sight records, included on the statements of competent ornithologists. It may be mentioned that of the 40 species named by Dr. Rives on his hypothetical list 18 have since been recorded in Virginia. The list of species new to the State follows:

Puffinus griseus. Sooty Shearwater. A specimen, which had been taken on Smith's Island, Va., was received in May, 1909, by the U. S.

National Museum from Capt. Geo. D. Hitchens, Audubon warden (The Auk, XXIX, 3, 399).

Puffinus l. lherminieri. AUDUBON'S SHEARWATER. Dr. Wm. C. Rives reports one taken on Sept. 1, 1893, by Capt. C. H. Crumb on Cobb's Island, Va. (The Auk, XVIII, 1, 189). He also says in the same article that William Palmer saw several early in October, 1900, at Virginia Beach. See also 'The Auk,' XLVIII, 2, 198–206.

Pterodroma hasitata. BLACK-CAPPED PETREL. A negro boy brought one alive to Dr. E. A. Smyth, Jr., at Blacksburg, Va., on August 30, 1893, "two days after the great cyclone" (The Auk, X, 4, 361). It is now in the Jonathan Dwight collection at the American Museum of Natural History.

Oceanites oceanicus. WILSON'S PETREL.—Dr. Alexander Wetmore records one that was "secured on the Potomac River in 1859 (catalogued on July 20, 1859)," and is now in the U. S. National Museum (The Auk, XLII, 2, 262). In the same article he speaks of this species as "common at sea near the Virginia capes."

Mycteria americana. WOOD IBIS.—William Palmer reports that three Wood Ibises, "an adult and two immature birds, were shot by two boys at Vinitarville, Goochland County, Virginia, and the wings and other parts forwarded to the National Museum by Mr. R. S. Allen for identification" (The Auk, XIV, 2, 208). He also refers to a clipping from a Richmond paper noting the occurrence of four others in New Kent Co., Va., probably during the summer of 1893. A probable record of one at Four Mile Run, Va., is included in 'The Birds of the Washington, D. C., Region,' p. 24.

Anser a. albifrons. WHITE-FRONTED GOOSE. Chas. A. Urner reports two which are now in the American Museum of Natural History and which were killed by William E. Ross, of Elizabeth, N. J., at Redhead Bay (Back Bay), Va., November 23, 1925 (The Auk, XLIII, 2, 229). They were immature birds.

Chen h. hyperborea. LESSER SNOW GOOSE.—A. C. Bent says of this form, "East rarely to Rhode Island . . . more frequently to the coasts of Virginia and North Carolina (Bull. U. S. Nat. Mus., No. 130, 1925, p. 172).

Chen caerulescens. BLUE GOOSE.—Dr. C. W. Townsend and C. L. Bull report two seen at the head of Back Bay, Va., November 14, 1928 (The Auk, XLVI, 1, 103). Edwin M. Hasbrouck reports the taking of a Blue Goose, February 1, 1930, at Bermuda Hundred, on James River, opposite Hopewell, Va. (The Auk, XLVII, 3, 416).

Somateria mollissima dresseri. AMERICAN EIDER.—A female taken on December 28, 1900, on Broadwater Bay, near Cobb's Island, Va., was reported by Henry Bryant, Cohasset, Mass. (The Auk, XVIII, 2, 189).

(It should be noted here that a record in 'The Auk,' VIII, 1, 112, of a female Barrow's Golden-eye (*Glaucionetta islandica*) shot on the Potomac in 1889 has since been rejected in the District of Columbia list. There is no Virginia record for this species.)

Coragyps a. atratus. BLACK VULTURE.—The first published record of the Black Vulture for Virginia was by John W. Daniel, Jr., then of Washington, D. C. (The Auk, XIX, 3, 397). He reported it as a not uncommon summer resident in Nansemond Co. and probably in Norfolk and Princess Anne Counties. Since then it has spread all over the State. In 1912 Dr. E. A. Smyth, Jr., recorded it as rare in Montgomery Co., in the mountains. In 1913 H. H. Bailey reported it as breeding in Warwick Co. Chas. O. Handley found it nesting in the mountains in Rockbridge Co. in 1919. In the summer of 1929 C. Brooke Worth found it breeding on the Potomac River above Washington, and the writer reported a nest on House Mountain, near Lexington, Rockbridge Co., at an altitude of over 3000 feet (The Auk, XLVI, 3, 385).

The 1931 A. O. U. 'Check-List' still limits the range of this bird to the Tropical and Lower Austral zones, but it is abundant throughout the Upper Austral in Virginia, except in the extreme northern part of the State, and common in our Transition Zone territory.

Elanoides f. forficatus. SWALLOW-TAILED KITE.—In 'The Birds of the Washington, D. C., Region' we are given a record of one seen near the Virginia end of the Aqueduct Bridge, Washington, on April 11, 1897, by Paul Bartsch.

Astur a. atricapillus. EASTERN GOSHAWK.—The only published record for Virginia which I can find is that of an adult female, taken by Dr. E. A. Smyth, Jr., in Montgomery Co., November 19, 1906 (The Auk, XXIX, 4, 515). Dr. H. C. Oberholser writes me that there are a few Virginia records in the files of the U. S. Biological Survey.

Aquila chrysaëtos canadensis. GOLDEN EAGLE.—The first published record of the Golden Eagle for Virginia which I have found is that of a male taken at Covington, Va., October 28, 1893, reported by Thaddeus Surber (The Auk, XI, 1, 77). Since then there have been a great many records. In 'The Auk,' XIII, 3, 256, Dr. Witmer Stone states that the Philadelphia Academy received three on December 18, 1895, from Looney, Craig Co., Va., two of which were shipped alive. A correspondent from Craig Co., Mr. John Looney, wrote at the time that eight or ten had been taken there that winter, four being caught in traps about one dead sheep. In the 'Proceedings Biol. Soc. Wash.,' XXXIII, 1920, 181, the following Virginia specimens are recorded: Upperville, Fauquier Co., March 10, 1919; The Plains, Fauquier Co., spring of 1913 or 1914; Peaks of Otter, with the place somewhat uncertain, December 1899, or January 1900; two received by the National Zoo from Wytheville, Va., February 5, 1896. I have seen a mounted specimen at Hot Springs, Va., which was killed (date unknown) at Nimrod Hall, near Millboro, Bath Co. A mounted specimen at the Virginia Military Institute, Lexington, Va., came from Newcastle, Va., about 1930. Chas. O. Handley writes me of a specimen taken in Nottoway Co., Va., by a Mr. Henderson about 1926. Dr. E. A. Smyth, Jr., has nine records for Montgomery Co., Va.

Phasianus colchicus torquatus. RING-NECKED PHEASANT.—This bird has been introduced into various parts of the State,—Warwick Co. (Bailey's, The Birds of Virginia); Hot Springs; and at the Lower end of the Valley of Virginia.

Pisobia fuscicollis. WHITE-RUMPED SANDPIPER.—Edward J. Brown took a male and two females on Smith's Island, May 14 to 28, 1894. (The Auk, XI, 3, 259). Dr. William C. Braislin secured one at Assoteague Island, near Chincoteague, Va., September 24, 1899 (The Auk, XVII, 2, 172). E. L. Poole reports a few at Bone Island, Va., July 2, 1921 (The Auk, XXXIX, 2, 273); and John F. Kuerzi saw twelve at Cobb's Island, September 10, 1927 (The Auk, XLVI, 1, 19). In 'The Birds of the Washington, D. C., Region' (p. 29) there are a dozen or more records, some of which are probably from Virginia.

Pisobia bairdi. BAIRD'S SANDPIPER.—R. S. Matthews collected an immature male at Four Mile Run, Va., September 3, 1894 (The Auk, XI, 4, 325). John F. Kuerzi reports one "satisfactorily observed" at Cobb's Island, September 7, 1927 (The Auk, XLVI, 1, 19). W. Howard Ball saw ten near Washington between October 9 and 23, 1930, three of which were collected (The Auk, XLVIII, 2, 260). William Palmer took one at Four Mile Run, September 25, 1894 (The Birds of the Washington, D. C., Region, p. 29).

Limnodromus griseus scolopaceus. LONG-BILLED DOWITCHER.—I have found no definite published records for this form from Virginia, but there are two specimens, both females, in the U. S. National Museum, which were taken by Robert Ridgway and Marshall at Bone Island, Va., July 14, 1880. They are Nos. 80273 and 80274 in the accessions records.

Micropalama himantopus. STILT SANDPIPER.—In the accessions records of the U. S. National Museum there is listed an adult female Stilt Sandpiper, No. 80335, taken by P. L. Jouy at Cobb's Island, July 23, 1880. Paul Bartsch collected one at Berryville, Va., September 16, 1917 (The Auk, XXXIX, 1, 106). In 'The Birds of the Washington, D. C., Region,' there is one recorded (p. 29) by Ball and Ruppert at Columbia Island, Va., June 3, 1926; and another by A. H. Hardesty at Little River, Va., September 6, 1918.

Tryngites subruficollis. BUFF-BREASTED SANDPIPER.—A. C. Bent (Bull. U. S. Nat. Mus., No. 146, 1929, p. 77) gives a fall record, September 5, at Wallops Island, Va.

Philomachus pugnax. RUFF.—An immature female was collected by William Palmer at the mouth of Four Mile Run, near Alexandria, Va., September 3, 1894 (The Auk, XI, 4, 325). The 1931 A. O. U. 'Check List' fails to include this important record.

Recurvirostra americana. AVOCET.—B. H. Warren collected two young of the year from a flock of four at Wallops Island in September, 1925 (The Auk, XLII, 4, 580).

Himantopus mexicanus. BLACK-NECKED STILT.—C. Brooke Worth and B. C. Hiatt give a sight record of two that seem to have been satis-

factorily identified at Cobb's Island, June 8, 1929 (The Auk, XLVI, 4, 558). The 1931 A. O. U. 'Check List' indicates the possible casual breeding of this bird in Virginia, but I can find no record for the State of a specimen taken.

Phalaropus fulicarius. RED PHALAROPE.—Dr. E. A. Smyth, Jr., reports one from Montgomery Co., taken on September 21, 1912 (The Auk, XLIV, 1, 45).

Stercorarius pomarinus. POMARINE JAEGER.—J. F. Kuerzi states that while he was on a visit to Cobb's Island "one fine Pomarine Jaeger was satisfactorily observed from the beach" on September 11, 1927 (The Auk, XLVI, 1, 19). The 'Check-List' records this species as wintering off the coast of Virginia.

Stercorarius parasiticus. PARASITIC JAEGER.—In the paper referred to under the preceding species J. F. Kuerzi states that "Parasitic Jaegers were occasionally noted flying off the beach" at Cobb's Island, September 5 to 13, 1927. W. Howard Ball reports a specimen taken between Analostan Island, D. C., and the Virginia shore of the Potomac, September 23, 1899 (The Auk, XLIX, 3, 362).

Larus hyperboreus. GLAUCOUS GULL.—Two sight records for Virginia are given in 'The Birds of the Washington, D. C., Region' (p. 15): one seen at Gravelly Point, February 20, 1920, by F. Harper and others; and one seen near Quantico, February 18, 1926, by Preble and Oberholser.

Larus pipixcan. FRANKLIN'S GULL.—An adult female was taken at Blacksburg, Va., by Dr. E. A. Smyth, Jr., October 24, 1898 (The Auk, XIX, 1, 74).

Thalasseus sandvicensis acuflavidus. CABOT'S TERN.—The only Virginia specimen of this bird which I have been able to locate is an adult male in the U. S. National Museum, which was taken by Robert Ridgway on Cobb's Island, July 12, 1880, and which was apparently not known to Dr. Rives. It is No. 80133. The only breeding record for many years past is that in Bailey's book (p. 9), of a set of two eggs taken "from one of our coastal islands" in the summer of 1912. The statement in the 'Check List' as to its breeding in Virginia seems, therefore, to need some qualifying.

Uria l. lomvia. BRUNNICH'S MURRE.—In 'The Auk,' XIII, 2, 171, I. N. De Haven reports two taken at Cape Charles, Va., a male on December 31, 1890, and a female on December 14, 1895. William L. Whittaker reports two taken and six others seen at Cape Charles, December 17, 1896 (The Auk, XIV, 2, 202); and in the next issue of the same volume (p. 312), Paul Bartsch lists six specimens, one of which was killed on Occoquan Creek, Va., December 20, 1896, and four on the Potomac, between Washington and Alexandria, a male on December 22, 1896, and females on December 27 and 28, 1896, and January 1, 1897.

Alle alle. DOVEKIE.—In 'The Auk,' X, 2, 204, E. J. Brown quotes a letter from Capt. Crumb stating that a Dovekie had been taken on Cobbs' Island during the preceding winter, this being its second known occurrence there. William L. Baily reports two shot by William H. Cookman out of

a flock of four near Killich Shoal Light in Chincoteague Bay, December 13, 1899 (The Auk, XVII, 3, 293). The U. S. National Museum received one from Smith's Island that had been shot on January 8, 1912 (The Auk, XXIX, 3, 399). An immature female was taken on Wallops Island by B. H. Warren, February 2, 1921 (The Auk, XXXVIII, 2, 269). J. C. O'Conor collected one at Sand Bridge, Va., January 20, 1923, and another was seen the next day (The Auk, XL, 2, 317). Dr. Witmer Stone recorded it from Back Bay, Va., December 5, 1930 (The Auk, XLVIII, 1, 105).

Columbigallina p. passerina. EASTERN GROUND DOVE.—A female was shot by Percy W. Shufeldt near Lynchburg, Va., November 4, 1900 (The Auk, XVIII, 2, 192).

Tyrannus verticalis. ARKANSAS KINGBIRD.—One was taken and another seen by Dr. B. H. Warren at Wallops Island, September 19, 1919 (The Auk, XXXVIII, 3, 458).

Troglodytes aëdon parkmani. WESTERN HOUSE WREN.—A male was collected by E. A. Mearns on Smith's Island, May 13, 1910, and is now in the U. S. National Museum (The Auk, XXXIII, 2, 203).

Telmatodytes palustris dissaëptus. PRAIRIE MARSH WREN.—Ridgway (Bull. U. S. Nat. Mus., No. 50, Part III, 1904, p. 493) refers to a Virginia specimen and J. H. Riley writes me that it is number 295,656 in the U. S. National Museum, an adult male, collected by William Palmer at Arlington, Va., April 29, 1888.

Hylocichla u. ustulata. RUSSET-BACKED THRUSH.—One was taken on Smith's Island, May 21, 1899, by Percy W. Shufeldt, and is now in the Carnegie Museum (The Auk, XLVIII, 3, 435).

Sturnus v. vulgaris. STARLING.—H. H. Bailey reported a flock in Warwick Co., January 4, 1912 (The Auk, XXX, 2, 274). It is now an abundant breeder all over the State.

Limnothlypis swainsoni. SWAINSON'S WARBLER.—This warbler was first reported from Virginia by Dr. A. K. Fisher, who saw it in the Dismal Swamp on June 2, 3, and 5, 1895 (The Auk, XII, 3, 307). He thought it probable that it was a common summer resident in the Swamp. William Palmer took an adult and John W. Daniel, Jr., an immature on a trip into the Dismal Swamp in the middle of June, 1897 (The Auk, XIX, 1, 15). H. H. Bailey found a nest with three eggs in Warwick Co., May 31, 1908, and another nest three weeks later (The Auk, XXV, 4, 478).

Vermivora bachmani. BACHMAN'S WARBLER.—William Palmer saw a specimen in the collection of Master P. Henry Aylett, King William Co., Va., "undoubtedly a young male of the year," which had been collected near Aylett's in that county in August, 1892 (The Auk, XI, 4, 333).

Dendroica dominica albilora. SYCAMORE WARBLER.—F. M. Jones, an experienced oölogist of Bristol, Va., writes me that he has found several nests of this warbler along the Holston River in Virginia near Bristol. The first was found on May 24, 1923, and was not then quite completed. A week later it contained four eggs. He has not taken a specimen.

Dendroica p. palmarum. WESTERN PALM WARBLER.—In 'The Auk,' XI, 4, 333, William Palmer lists five Virginia specimens: Roslyn, April 22, 1885; Potomac Landing, September 18, 1887; Roslyn, April 29, 1888; Ballston, October 4, 1891; Four Mile Run, September 22, 1893. The writer sees two or three each spring and fall at Lexington, Va., typical dates being May 4 and 8 and October 1 and 12, 1931.

Xanthocephalus xanthocephalus. YELLOW-HEADED BLACKBIRD.—A male and female were seen by Capt. W. T. Abbott at Chincoteague, Va., August 29, 1912, and the female collected and given by him to Dr. B. H. Warren (The Auk, XXX, 1, 113).

Acanthis l. linaria. COMMON REDPOLL.—William Palmer records a specimen taken by Dr. T. H. Bean at Ft. Runyon, Va., February 19, 1875, and which is now in the U. S. National Museum (The Auk, XI, 4, 333).

Loxia curvirostra percna. NEWFOUNDLAND CROSSBILL.—Dr. Alexander Wetmore took one at Four Mile Run, Va., November 30, 1919 (The Auk, XXXVII, 3, 456).

Loxia leucoptera. WHITE-WINGED CROSSBILL.—Dr. E. A. Smyth, Jr., took specimens out of a flock of about fifteen of both sexes, at Blacksburg, Va., January 25, 1920 (The Auk, XLIV, 1, 45).

Oberholseria chlorura. GREEN-TAILED TOWHEE.—One was taken at Bower's Hill, near Norfolk, Va., January 26, 1908, by J. B. Lewis (The Auk, XXV, 2, 224).

Calamospiza melanocorys. LARK BUNTING.—One of these birds, probably an adult, was taken at Lexington, Va., by the writer on February 11, 1932 (The Auk, XLIX, 3, 359). It is now No. 330,128 in the U. S. National Museum.

Ammospiza caudacuta nelsoni. NELSON'S SPARROW.—In 'The Auk,' XI, 4, 333, William Palmer lists three Virginia specimens: one taken by C. Drexler in September, 1862; one taken at Cobb's Island by E. J. Brown, May 11, 1892; and one by himself at Four Mile Run, September 18, 1893. He saw another on the Potomac Flats, September 26, 1898 ('The Birds of the Washington, D. C., Region,' p. 47). The writer has seen it once near Lexington, Va., October 17, 1928.

Aimophila aestivalis bachmani. BACHMAN'S SPARROW.—John W. Daniel, Jr., collected two specimens, together with the nest and five eggs well advanced in incubation, on Blackwater Creek, Lynchburg, Va., May 12, 1897 (The Auk, XIV, 3, 322). Later (The Auk, XVII, 3, 296) he reports it as a common summer resident in Albemarle Co., Va., where several birds and nests with eggs were taken in the summer of 1899. Dr. E. A. Smyth, Jr., collected one in Montgomery Co., May 2, 1906 (The Auk, XXIII, 3, 341). There are several summer records for northern Virginia (The Birds of the Washington, D. C., Region, p. 49).

The addition of these 48 species brings the Virginia list up to a total of 340.

3. NEW SUB-SPECIES FOR VIRGINIA SINCE 1890.

The avifauna of Virginia has been further augmented by a number of new subspecies which have been recognized since the publication of Dr. Rives' catalogue. They are as follows:

Anas r. rubripes. RED-LEGGED BLACK DUCK.—This form is said to be abundant about Washington in winter, and the same is probably true along the Virginia coast. I have seen one individual at close range at Big Spring Pond, near Lexington, Va., April 4, 1930, which I was sure belonged to this race.

Colinus virginianus texanus. TEXAS BOB-WHITE.—This bird has been introduced into every part of the State by the Commission of Game and Inland Fisheries. There have been returns of birds that were banded before liberation. Its future status is uncertain, but it will probably disappear by breeding with the native race.

Ceophloeus pileatus abieticola. NORTHERN PILEATED WOODPECKER. —This is the breeding form of the mountains of western Virginia. The boundary in the State between *pileatus* and *abieticola* needs more careful working out.

Dryobates villosus auduboni. SOUTHERN HAIRY WOODPECKER.— While this is not a new subspecies, it was not included by Rives in 1890. The latest 'Check-List' gives its range as reaching southeastern Virginia. Bailey recorded it as a breeder in the State but gave it too much territory.

Dryobates p. pubescens. SOUTHERN DOWNY WOODPECKER.—There seems to be some uncertainty as to the subspecific identity of the Downy Woodpeckers of southeastern Virginia. The A. O. U. 'Check-List' limits the northward range of *pubescens* to North Carolina. Dr. H. C. Oberholser, however, writes me that he has examined birds from this region which should be listed as *pubescens*. The faunal relationships of the region are rather with the territory to the south than with that to the north.

Corvus brachyrhynchos paulus. SOUTHERN CROW.—This is the breeding bird and permanent resident of most of Virginia east of the mountains, while the Eastern Crow, *C. b. brachyrhynchos*, is probably the breeder of the mountains and is a winter resident all over the State. (The Birds of the Washington, D. C., Region, p. 43.)

Turdus migratorius achrusterus. SOUTHERN ROBIN.—This is the breeding form of the State, and is probably absent in winter, while *T. m. migratorius* is a migrant throughout, and a winter resident in most of the State.

Compsothlypis americana pusilla. NORTHERN PARULA WARBLER.— The northern form is the breeding bird of the mountains and a migrant through the rest of the State, while *C. a. americana* is the breeding form of most of the State. In the Washington region *americana* is a common summer resident, while *pusilla* is a common migrant.

Dendroica caerulescens cairnsi. CAIRNS' WARBLER.—This is an abundant summer resident in the mountains above 2000 feet.

Dendroica virens waynei. WAYNE'S WARBLER.—This, the lowland form of the Black-throated Green Warbler, was found by Wm. B. McIlwaine, Jr., of Alexandria, and the writer, on a trip into the Dismal Swamp on May 23 to 26, 1932, to be a common breeder in the Swamp. We saw two pairs feeding young birds and heard at least ten other singing males (The Auk, XLIX, 4, 487).

Geothlypis trichas brachidactyla. NORTHERN YELLOW-THROAT.

Geothlypis trichas ignota. FLORIDA YELLOW-THROAT.—In 'The Auk,' XVII, 3, 216–242, William Palmer has surveyed the distribution of the three forms of *Geothlypis* in Virginia. *G. t. trichas* is the common summer resident over all the State except the southeastern corner; *G. t. ignota* is a common summer resident in the Dismal Swamp area, and probably all across the southeastern corner south of Chesapeake Bay, while *G. t. brachidactyla* is a migrant everywhere.

Melospiza melodia atlantica. ATLANTIC SONG SPARROW.—This form, the type of which is from Smith's Island, Northampton Co., Va., ranges in a narrow strip along the coast.

4. SUMMARY.

In 'A Catalogue of the Birds of the Virginias' Dr. William C. Rives listed 305 forms of birds from the Virginias but I notice that the serial number 300 has been omitted so that the total should be 304. With 13 removals and one addition the list for Virginia proper in 1890 would stand at 292. With the addition of 48 species discovered in the State since that time and 13 newly-recognized subspecies which occur within the State, the Virginia list should now stand at 353 species and subspecies. There have also been during this period additional records for many of the species described by Dr. Rives as rare, but for these there is not room in the present paper.

Lexington, Virginia.

ON THE PALÆARCTIC ELEMENT IN THE A. O. U. 'CHECK-LIST' (4th EDIT.)

BY F. C. R. JOURDAIN, H. F., A. O. U.

THE following notes refer only to the Palæarctic forms which figure in the new 'Check-List', and relate chiefly to questions of distribution. Nomenclature is outside the scope of this paper.

Gavia immer immer (Brünn). COMMON LOON. The breeding range of this species is now (1932) known to include Bear Island. It is also a summer visitor (not yet recorded as breeding) to Spitzbergen.

Gavia adamsi (Gray). YELLOW-BILLED LOON.—There is little doubt that the breeding range of this species extends west of Novaya Zemlya to the coast of North Russia and North Finland. Eggs which can only belong to this form or *G. immer* have been taken in Finland.

Colymbus grisegena holboelli (Reinhardt). HOLBOELL'S GREBE.—Also accidental in Scotland.

Colymbus auritus L. HORNED GREBE.—Also breeds in Scotland.

Thalassogeron chlorohynchos (Gmel). YELLOW-NOSED ALBATROSS.—Stated to breed "probably" on Falkland as well as the Tristan da Cunha group. I do not know of any evidence of nesting in the Falklands.

Puffinus puffinus puffinus (Brünn). MANX SHEARWATER.—The last part of the paragraph reads "Additional races occur off Great Britain and in the Mediterranean." This would be better expressed thus: "Additional races breed in the Mediterranean and one of them has occurred north to Great Britain."

Fulmarus glacialis glacialis (L.). ATLANTIC FULMAR.—For "east at least to Franz-Josef Land" read "east to at least one locality in Norway."

Hydrobates pelagicus (L.)., STORM PETREL.—Stated to breed on "Lofoten Island" but it is only a casual visitor to this group, and is not known to breed anywhere on the Norwegian coast.

Moris bassana (L.). GANNET.—Add to breeding range the Faroes.

Ardea cinerea cinerea L. EUROPEAN HERON.—Also accidental in Spitsbergen.

Cygnus cygnus (L.). WHOOPER SWAN.—The place of this species in the American list rests upon its occurrence in Greenland, where it formerly bred; the Iceland bird has been separated under Brehm's name of *islandicus* on account of its superior size. (Schiøler, Danmarks Fugle, Vol. I.)

Branta bernicla hrota (Müller). AMERICAN BRANT.—"Breeds . . . apparently [in] the Spitzbergen Archipelago." The force of "apparently" is not clear, for this race was named by Müller on the Iceland birds, which are passage migrants to East Greenland and are identical with Spitsbergen

birds. Koenig and Le Roi had no Russian or Siberian material for comparison when writing the 'Avifauna Spitzbergensis.'

Branta leucopsis (Bechst.). BARNACLE GOOSE.—"Possibly" after Novaya Zemlya should be deleted, as a large breeding colony has now been discovered there: the Lofoten Islands should also be deleted. If breeding ever took place there (which is very doubtful) it could only have been by a pair of priched or domesticated birds.

Anser albifrons albifrons (Scop.). WHITE-FRONTED GOOSE.—American arctic breeding birds are united with those from Siberia. This may possibly be correct, but there is an enormous gap in distribution between West Greenland and the Kanin peninsula and the North Russian islands. No authentic case of breeding in Iceland is known and the supposed breeding in Lapland is now discredited.

Anser fabalis (Latham). BEAN GOOSE.—Said to be accidental in Greenland, but has no claim to a place in the American list, as it is only recorded in error for *A. brachyrhynchus*.

Chaulelasmus streperus (L.). GADWALL.—Iceland is not included in the breeding range and should be added.

Nettion crecca (L.). EUROPEAN TEAL.—Also accidental in Spitzbergen and Novaya Zemlya.

Nyroca fuligula (L.). TUFTED DUCK.—Add to breeding range: Iceland and Faroes.

Glaucionetta islandica (Gmel.). BARROW'S GOLDEN-EYE.—Add: also accidental in Europe (Norway, Finland, Faroes and Belgium).

Charitonetta albeola (L.). BUFFLE-HEAD.—Add: also accidental in Great Britain.

Clangula hyemalis (L.). OLD-SQUAW.—Add to breeding range: Spitsbergen, Bear Island, Orkneys.

Polysticta stelleri (Pallas). STELLER'S EIDER.—Stated to breed on the Arctic coast of Siberia from the Taimyr Peninsula eastward, but has of late increased its range westward and is present in some numbers in summer annually in the Varanger Fjord. Young are said to have been seen there, but as yet confirmatory proof is not forthcoming.

Haliaeetus albicilla (L.). GRAY SEA EAGLE.—All the American records of this species (with the possible exception of the Massachusetts specimen and of course the Unalashka bird) must belong to the race inhabiting the West Coast of Greenland which has been separated on account of the size under Brehm's name of *groenlandicus* (See Danske Fugle. Vol. III). The breeding range of the species is stated to extend "to Spitzbergen and Novaya Zemlya." It has never been recorded from Spitsbergen, even as a casual visitor, but is believed to breed in the South Island of Novaya Zemlya. Its range is not confined to "Northern Europe" or "Northern Asia" as stated, for it breeds freely in Roumania, Asia Minor, Northern Syria and Iraq.

Falco rusticolus candicans Gmel. WHITE GYRFALCON.—Stated to be resident in Spitsbergen, but this is not the case, as it is only an occasional

summer visitor not recorded as breeding. On Franz Josef Land where it is described as "resident (probably)" its occurrence rests solely on two sight records. Probably both are correct, but there is nothing to show that it is more than a casual visitor in summer.

Falco peregrinus peregrinus Tunst. PEREGRINE FALCON.—The sole authority for including this race in the American list is the statement of Helms, that of two birds shot from the nests in 1909 and 1911 in the same district of East Greenland, one closely resembled the American form while the other was more like the European race! Schiøler had an unrivalled series of 79 Greenland skins for comparison and gives full details of them as well as four colored figures in 'Danske Fugle,' Vol. III.

Falco aesalon aesalon Tunst. MERLIN.—Schiøler assigns the only Greenland record to the Iceland race. *F. columbarius subaesalon* Brehm and gives measurements (*tom cit.*)

Falco sparverius sparverius L. EASTERN SPARROW HAWK.—Add: accidental in Denmark.

Fulica atra atra L. EUROPEAN COOT.—Recorded as 'accidental' in Iceland, but it has been known to breed there on at least two occasions.

Charadrius hiaticula hiaticula L. RINGED PLOVER.—Also breeds in Spitsbergen in small numbers.

Charadrius dubius curonicus Gmel. LITTLE RINGED PLOVER.—This species does not breed in the British Isles, Northern Scandinavia, North Finland or North Russia, it is a central and southern European form.

Eudromias morinellus (L). DOTTEREL.—It is misleading to say that it "Breeds in the Alps" for it has never been known to breed there, though a few pairs apparently nest in the High Tatra and Carpathians.

Pluvialis apricaria apricaria (L.). EUROPEAN GOLDEN PLOVER.—It is the northern race (*P. a. atrifrons*) which breeds in Iceland and perhaps occasionally in East Greenland though no actual proof of nesting has come to my knowledge. The southern race (typical locality Öland) breeds in the British Isles and Central Europe—but has not occurred in Greenland.

Arenaria interpres interpres (L.). EUROPEAN TURNSTONE.—Also breeds in Spitsbergen. In Europe its breeding range extends to the southern islands in the Baltic.

Pelidna alpina alpina (L.). DUNLIN.—Although no eggs have as yet been obtained, there is no doubt that this species breeds in Spitsbergen.

Limosa limosa limosa (L.). BLACK-TAILED GODWIT.—If the Iceland race (*islandica* Brehm) is recognized it must be this form which has occurred in Greenland. In Europe its northern range does not extend to anywhere near the Arctic Circle, reaching only to about lat. 60° N. and even in Iceland only to 64° 30′.

Crocethia alba (Pallas). SANDERLING.—There is no definite proof of breeding in Iceland.

Lobipes lobatus (L.). NORTHERN PHALAROPE.—Also breeds in the Shetlands.

Stercorarius pomarinus (Temm.). POMARINE JAEGER.—Stated to breed "from Iceland and Spitsbergen along the Arctic coast of Norway,"

etc. There is no breeding record of this species from Iceland, Spitsbergen or Norway. Possibly it breeds in N. Russia, but the only known breeding places are the Yamal Peninsula, Novaya Zemlya and from the Taimyr eastward.

Stercorarius longicaudus Vieill. LONG-TAILED JAEGER.—"Arctic coasts and islands of Europe" is too general a statement. This species does not breed anywhere between Greenland and Northern Scandinavia except in small numbers on Spitsbergen.

Larus marinus L. GREAT BLACK-BACKED GULL.—Breeds not only in "northern British Isles," but south to the Scillies and Cornwall. Also breeds on Bear Island.

Larus fuscus graellsi Brehm. LESSER BLACK-BACKED GULL.—By an unfortunate transposition the British Isles have been omitted from the breeding range, and included in the winter range. The place of this form in the American list rests on Reinhardt's single occurrence in Greenland, but the specimen which is in the Museum at Copenhagen has been shown to be *Larus argentatus! L. fuscus graellsi* should therefore be deleted from the list altogether. (Cf. Novit. Zool., XXXV, 1929, p. 82.)

Larus minutus Pall. LITTLE GULL.—Said to breed "from Iceland to the Sea of Okhotsk." It has occurred once only on the Westmann Islands near Iceland, and only breeds in Europe in the neighborhood of the Baltic Sea and in Russia.

Pagophila alba (Gunner.). IVORY GULL.—The only Arctic islands in Europe on which this species breeds are Spitsbergen, Franz Josef Land and Novaya Zemlya.

Sterna dougalli dougalli Mont. ROSEATE TERN.—The breeding range extends in the Atlantic south to the Azores and Madeira.

Chlidonias leucoptera (Temm.). WHITE-WINGED TERN.—Hungary is the western limit of the normal breeding range.

Plautus impennis (L.). GREAT AUK.—For "Elderey" read "Eldey" Island.

Uria aalge aalge (Pontopp.). ATLANTIC MURRE.—Also breeds along the greater part of the coasts of Scotland.

Cepphus grylle grylle (L.). BLACK GUILLEMOT.—Also breeds in Ireland.

Fratercula arctica arctica L. ATLANTIC PUFFIN.—Is replaced in the British Isles, Faroes and S. Scandinavia by *F. a. grabæ* (Brehm).

Corvus frugilegus frugilegus L. ROOK.—"Europe in general including Great Britain." For "Great Britain" read "the British Isles." It is absent in the extreme north of Europe and lacking as a breeding species in Spain, southern France, southern Italy, and most of the Balkan Peninsula.

To economize space I have made the foregoing notes as brief as possible, but shall be glad to furnish full particulars and references on any doubtful point.

Whitekirk, Southbourne, Bournemouth, England.

GENERAL NOTES.

White Pelican (Pelecanus erythrorhynchos) in British Columbia.—For many years these graceful birds have passed through central British Columbia on their annual migrations to and from their breeding grounds in the Chilcotin.

On May 7, 1926, a flock of two hundred rested overnight on the sandbar at the junction of the North and South Thompson Rivers opposite the city of Kamloops, continuing their northward flight early the following morning.

During the summer of 1931, when camped at Chezacut Lake, altitude 3250 ft., our party daily enjoyed the delightful sight of White Pelicans swimming about and feeding in the lake in front of the camp. Here they had an excellent choice of diet as Chezacut Lake abounds in rainbow-trout, squaw fish, suckers, and Rocky Mountain greyling. Often we watched the birds gliding through the lily pads and now and then making a quick thrust with their long beaks at some unsuspecting fish.

Enquiries elicited the information that a large breeding colony existed at "Pelican" Lake about sixty miles southeast of Chezacut Lake and later on the Indians told us that they had found Pelicans on lakes farther north while a rancher stated that he had seen pelicans nesting on Anahim Lake, but these reports require corroboration.

Generally four or five pelicans would arrive together and alight in different parts of the lake keeping a considerable distance apart as they seldom fished near one another. Feeding would be continued for several hours, sometimes for half a day or longer before they returned homeward.

We found the birds wary and they seldom allowed us to approach closer than one hundred to one hundred and fifty yards. An Indian found a dead pelican and brought it into camp. It proved to be a male weighing fourteen pounds, but was in very emaciated condition and badly infected with intestinal parasites.—Kenneth Racey, *Vancouver, B. C.*

A Gannet in Delaware Co., Pa.—The recent occurrence of a Gannet (*Moris bassana*) at Glenolden, Pa., killed by a gunner on or about November 11, 1932, seems worthy of record inasmuch as the writers know of only one previous record for the state (The Auk, Vol. XLIII, pp. 363). When interviewed, the gunner stated that the bird flushed close by from the ground and flew directly at him! The next moment he was flat on his back, having been struck by the bird's bill. Regaining his feet and seeing the bird coming toward him again he took his shotgun apart, and using the barrel as a club, struck the bird on the head and killed it.

When asked why he did not shoot the bird, he replied, "I thought it was some kind of goose and didn't want to blow it to pieces!" The fact that the specimen, an immature, now in the collection of the Academy of Natural Sciences, Philadelphia, shows no evidence of being shot, but bears several

bruises, would appear to lend credence to the gunner's story.—MABEL B. AND JOHN A. GILLESPIE, *Glenolden, Pa.*

Great Blue Heron in Cuba: A Correction.—In my note on this subject (Auk, vol. 49, p. 457, October, 1932) I made an unaccountable mistake in giving the date of banding of No. 320371 as February 9, 1931. The correct date is July 18, 1931. Needless to say, the banding of a fledgling Great Blue Heron at Green Bay, Wisconsin, on February 9, would be a most remarkable ornithological feat!—FREDERICK C. LINCOLN, *Biological Survey, Washington, D. C.*

American Egret in Western Virginia.—By the courtesy of Prof. Ralph Hostetter, of the Eastern Mennonite School of Harrisonburg, Va., I am able to report another occurrence of the American Egret (*Casmerodius albus egretta*) in the Valley of Virginia. This bird, a male, now in the museum of the school mentioned above, was shot near Dayton, Va., July 11, 1930. The man who killed it was prosecuted and fined, and the bird was confiscated.—J. J. MURRAY, *Lexington, Virginia.*

American Egret Nesting in Delaware.—In a colony of Little Blue Herons located in middle Delaware several years ago I found this year (May 1932), a single nest of the American Egret (*Casmerodius albus egretta*). The nest was in a cedar tree about twenty feet up and was larger than those of the Little Blues. There was a Black-crowned Night Heron's nest higher up in the same tree and egg shells from both nests were on the ground; those of the egret could easily be told by their larger size. When the nest was found the young were about a day old.

This is, I believe, the first record of the nesting of this bird in the state in recent years.—HERBERT BUCKALEW, *Milford, Delaware.*

Snowy Egret in Arkansas.—While collecting in Prairie Co., Arkansas, in July 1926, near De Vall Bluff, T. E. White, collected an adult egret, the skeleton of which has recently been identified by Dr. Alexander Wetmore as that of *Egretta thula thula.* This specimen is now No. 19177 of the museum collection.

W. J. Baerg (Birds of Arkansas, Jan. 1931) has listed the Snowy Egret as extinct within the limits of Arkansas. On the other hand, H. E. Wheeler (Birds of Arkansas, Dec. 1924) listed it as a summer resident, although quite rare. He supplies no dates as to when it was last collected or observed.—J. D. BLACK, *Museum of Birds and Mammals, University of Kansas, Lawrence, Kansas.*

The type of Egretta brevipes.—In 1862 Verreaux and Des Murs (Rev. Mag. Zool., p. 130) described this species from New Caledonia, but it has never again been found. It was listed as a doubtful and unidentifiable species by Marie (Actes Soc. Linn. Bordeaux, 1870, XXVII, p. 328), by Layard (1882, Ibis, p. 532) and by Sarasin (1913, Nova Caledonia,

Zool., I, p. 67). It was, however, not mentioned in the 'Catalogue of Birds Brit. Mus.,' Vol. XXVI, in Sharpe's 'Handlist' or Peters' 'Check-list.'

During the preparation of a check-list of the Polynesian bird fauna, in which I am engaged at present, I came across this species and attempted to identify it. The type, according to Sarasin (l. c.), is not in the Paris Museum and it was therefore possible that it might have come to the American Museum with that part of the Verreaux Collection that was acquired by this institution. An investigation has revealed indeed in our collection of mounted birds a specimen of *Demigretta sacra* with an original Verreaux label, which reads: "No. 2551, Egretta brevipes J. Verreaux et O. Des Murs., Rev. et Mag. Zool., Nouvelle Caledonie, ♂." This specimen fits very well the description given by the French authors, except that the bill is now more or less dirty yellowish-brown, with the tip lighter yellow, not blackish with yellowish tip as indicated in the original description. This is probably due to the fading of the specimen which has been exposed to light for seventy years. There are also on the lesser wing-coverts and secondaries a few scattered slaty feathers not mentioned in the original description. The measurements agree reasonably well with those given in the original description of the rediscovered type specimen.

	Original description	Type-specimen	*modestus*
Length of bill.....	90 mm.	94 mm.	103 mm.
Length of tarsus.....	100	96	144
Exposed tibia.....	30	41	97
Wing.....	300	332	340
Tail.....	80	107	128
Middle toe and nail..	70	77	97

The French authors in the original description compared their "new species" with *timoriensis* (= *Casmerodius albus modestus* Gray), for which reason I have added the measurements of a Celebes specimen of that species. There can be no doubt that *brevipes* is really the white phase of *Demigretta sacra*. In no other species of white heron that might occur on New Caledonia is there such a combination of a long wing and short tarsus.

The American Museum possess from the Verreaux Collection also the types of *Rhipidura spilodera verreauxi* Marie and of *Clytorhynchus pachycephaloides* Elliot and the apparent cotypes of several other New Caledonian species.—Ernst Mayr, *Amer. Mus. Hist., New York.*

Recent Records of the Flamingo in Florida.—Sporadic occurrences of the Flamingo in southern Florida are numerous, as consultation of the pages of Mr. Howell's splendid 'Florida Bird Life' (1932, pp. 122–124) will show; yet this striking bird is in fact so rarely seen in Florida waters, and is of such general interest to bird students, that I am moved to place on record two recent reports that I believe to be entirely trustworthy.

On May 11, 1932, Audubon wardens D. G. Cox and Loren S. Roberts, while patrolling in Florida Bay near East Cape, saw a Flamingo at Clive

Key. Cox was a newcomer at Cape Sable. Roberts, who is a native, said that this was the first Flamingo he had seen in ten years.

Five months later, in the Ten Thousand Islands, Audubon wardens Perry and Roy Roberts watched four Flamingos come from the south on the morning of October 1, 1932, and alight on a bank near Buzzard Key. After about three hours, they flew over into Alligator Cove, but returned next morning to feed on the same bank near Buzzard Key. Here presumably the same four birds were again seen on October 11. Perry and Roy Roberts are brothers who have lived all their lives in southern Florida, and are thoroughly familiar with the larger birds of the region. Moreover they had been guarding several hundred "pinks" for months, and I do not believe it possible that they could have mistaken Roseate Spoonbills for Flamingos.

I agree with Mr. Howell in the opinion that Flamingos have never nested in Florida, certainly not during the period of American ornithological history. Whether they come from Great Abaco, Andros, or the keys of northern Cuba (the nearest known breeding colonies *cf.* Pearson, Nat. Geog. Magazine, October, 1932, 469), it would be idle to conjecture, though it might be observed that the Andros colony is the nearest of the three to Florida.—Ernest G. Holt, *Nat. Association of Audubon Societies, New York City.*

The Whistling Swan (Olor columbianus) in South Carolina.—Although there have been sporadic occurrences of the Whistling Swan at rare intervals in the upper counties of this state, they are among the very rarest of the coastal birds, one seen in 1917 by the late Arthur T. Wayne being the only one known for a generation. The occurrence of several during this past winter has special interest and the fact that one flock spent more than a month is the first known instance of their extending a stay which could almost be termed "wintering."

The first report of the swans in the South Carolina coastal section came from Mr. W. S. Bogart of Charleston, who saw a flock of six over the Stono River, on November 28, 1932. During the two weeks that followed, reports were received from plantations on three other tidal rivers, stating that swans had been seen there and remained for a few days. Eleven were seen on Mr. Arthur Whitney's place on the South Edisto River; four at Mr. W. R. Coe's Combahee River home, and seven from Mr. John F. Maybank's plantation on the Ashepoo. This last flock was the one which remained, and at the present writing, has been on the place for over a month. Rigid protection of these birds is being undertaken by Mr. Maybank and they seem perfectly at home in the cypress backwater.—Alexander Sprunt, Jr., *92 South Battery, Charleston, S. C.*

Gray Lag Goose in Massachusetts.—On December 2, 1932, following some heavy gales and a spell of zero weather, I spotted an exhausted goose floundering on the ice at a wide part of the Housatonic River here. I

managed to capture the bird, and later brought it to the American Museum of Natural History, where it was positively identified by Mr. John T. Zimmer as a European Gray Lag (*Anser anser*). The bird is now under my care at the Pleasant Valley Sanctuary, and in the best of condition.

When found, the bird showed bullet marks on the primaries of one wing, its feet were a bright pink, showing no signs of recent captivity, and its behavior was that of a wild bird. During the first two days of captivity it attempted to hide whenever approached, and would not eat until the third day, when released on the pond with a flock of Canada Geese.

I am told that the Gray Lag has been previously taken in America, but I cannot find an authentic record.—S. Morris Pell, *Lenox, Mass.*

Blue Goose in Alabama.—Arthur H. Howell in his 'Birds of Alabama,' 1924, was obliged to admit this species on the basis of descriptions supplied him by non-ornithological residents who had seen or shot certain "strange geese" (*op. cit.*, p. 67). The occurrence of *Chen caerulescens* within the boundaries of Alabama can now be confirmed by the following definite records:

(1) In a collection of mounted birds at Montgomery, belonging to the State Department of Archives and History, there is a Blue Goose labeled merely with the date February 10, 1922. I saw this specimen in June, 1932, and subsequent correspondence has elicited the information that it was shot by Edward Hinderer at the head of Parker's Island, at the mouth of the Tallapoosa River. The bird was alone and did not appear to have been with any near-by flock of geese.

(2) On November 16, 1931, I examined and measured in the flesh an adult Blue Goose that had been killed the day before by Edward Hinderer about a mile below Washington Ferry, on the Autauga County side of the Alabama River.

In addition, I have a report of a Blue Goose killed near Independence, in October, 1931, by Lawrence Wyatt, of Selma, who found the bird feeding with another of its kind and with many crows and Mourning Doves in a field of corn, peanuts, and velvet beans; and I am told that another Selma man has a mounted Blue Goose that was taken somewhere in Alabama, but I have had no opportunity to personally check either report.—Ernest G. Holt, *National Association of Audubon Societies, New York City.*

Blue Goose in Maryland.—Mr. B. Howell Griswold, Jr., of Baltimore informs me that the guide on his ducking shore on the Eastern Shore of Maryland captured a Blue Goose (*Chen caerulescens*) there during a heavy snow storm early in February, 1933. The bird is now alive in the guide's possession.—Witmer Stone, *Academy of Natural Sciences, Philadelphia.*

Third Occurrence of the Brant (Branta bernicla hrota) in South Carolina.—I am indebted to Mr. George Haas, of New York and Tibwin Plantation, S. C., for the privilege of recording the third known specimen of the Brant in this state. Mr. Haas shot an immature female on his

plantation, about twenty-five miles north of Charleston, on November 30, 1932, and brought it to the writer for verification and mounting. The bird was in excellent plumage but was exceedingly thin, this being the case with the other two taken locally, one in 1924 and one in 1930 (Auk, Vol. XLVIII, 244 and Vol. XLII, 265.—ALEXANDER SPRUNT, JR., *92 South Battery, Charleston, S. C.*

The Cinnamon Teal: A New Bird for South Carolina.—I am indebted to Francis M. Weston, of Pensacola, Florida, to whom the sole credit for this valuable record is due, for the privilege of recording the first observance of *Querquedula cyanoptera* in South Carolina.

In a ricefield on the plantation of Mr. Harry Payne Bingham, in Beaufort County, on January 28, 1933, Mr. Weston saw, among other ducks, "a pair of Cinnamon Teal, the drake in high plumage, from the highway at a distance of not more than fifty yards with 6 x binoculars. The birds were in company with other teal so that comparisons were readily made and it was possible to critically examine the female *cyanoptera* and note the reddish or brownish tinge on the breast which, together with her habit of keeping company with the easily recognizable drake, established her identity."

On hearing from Mr. Weston a few days later, the writer with Messrs. Burton and Chamberlain of the Charleston Museum, visited the spot and searched for the teal but were unsuccessful. The care-taker of the plantation however, informed us that he had noticed this "red teal" for some while during January and wondered what it was.

Arthur T. Wayne (Birds of South Carolina, p. 17) describes a bird in the collection of the Charleston Museum as a specimen of *cyanoptera*, because of the narrowness of the bill, but examination in later years showed that the bill had shrunk and upon submitting the specimen to the National Museum, it was declared to be *discors* rather than *cyanoptera*. The species was then placed on the hypothetical list of birds of the state, but this observance of Mr. Weston's definitely removes it from that category. There were at least three other female teal which showed the reddish tinge on the breast, but the fact that the one drake in its unmistakable plumage was noted by both Mr. Weston, a field ornithologist, and the plantation care-taker who is familiar with both the Blue- and Green-winged Teal, is quite enough to establish the species.—ALEXANDER SPRUNT, JR., *92 South Battery, Charleston, S. C.*

Occurrence and Nesting of the Redhead in Montana.—In his work on Montana birds (Pacific Coast Avifauna No. 14, 1921, p. 36) A. A. Saunders lists the Redhead (*Nyroca americana*) as an uncommon migrant, unknown west of the divide, stating that "there are no definite breeding records, and only one case of its occurrence in summer, in Gallatin County . . . . ."

During the three years, 1929 to 1931, I noted this species a number of

times in spring, summer, and fall at Dry Lake and at Barnaby Lake, near Fortine, in the extreme northwestern corner of Montana, but did not find any birds nesting. Specific dates of occurrence, with the number of birds seen in each case, are as follows: 1929, May 12 (1), May 19 (10), and June 9 (6); 1930, April 13 (pair), May 18 (pair), June 4 (1 male), July 2 (1 male), and September 16 (1 taken); 1931, May 17 (2), June 14 (1), and July 12 (1).

During the summer of 1932, I obtained definite breeding records for the Redhead at Barnaby Lake. On June 12, a nest containing five eggs of this species and five eggs of the Ruddy Duck was found. Four male and three female Redheads were observed on the lake. On June 26, a female Redhead with a brood of ten young, appearing to be about a week old, was seen on the lake. Two adult males were also observed on this occasion.—Winton Weydemeyer, *Fortine, Montana.*

White-winged Scoters in Eastern Kansas.—On November 15, 1932, Mr. A. Lange, a sportsman of Leavenworth, Kansas, killed two White-winged Scoters (*Melanitta deglandi*) on the Kansas river near Leavenworth. They are now in the Museum collection.

This is the third recorded appearance of this duck in the state of Kansas. The first two (November 21, 1927, and November, 1928) were reported by L. V. Compton. (Condor, Vol. XXXIII, p. 256, Nov., 1931.)—W. S. Long, *Museum of Birds and Mammals, Lawrence, Kansas.*

Peculiar Behavior of Hawks with Flocks of Starlings.—On October 22, 1932, while walking with a group of bird students on the grounds of Oglebay Park, Wheeling, W. Va., our attention was directed to a large flock of starlings, with which was flying a Cooper's Hawk. The starlings were making their characteristic wheeling and curving flight, and the hawk was following each movement exactly, remaining near the center of the flock. Although they were under careful observation for a number of minutes, we never saw any action resembling attack on the part of the hawk, nor could we detect any fear of it on the part of the starlings. Time after time they flew around very close, crossing over in flight just in front of the hawk, seemingly paying it no more attention than if it had been another of their own species. From their flight, it looked exactly as though they were playing with each other.

A few days later, at French Creek, Upshur County, W. Va., a similar observation was made, the hawk (*Accipiter* sp.?) behaving in exactly the same manner. About the same time, Messrs. Emerson Carney and C. L. Brooks of Morgantown, W. Va., reported a like observation from the vicinity of Waynesburg, Greene County, Pa., still another was made near Buckhannon, Upshur County, W. Va. It was impossible to make any determination of the hawks in the last two cases.

At no time did any observer see any threatening action on the part of the hawks, or any fear displayed by the starlings. It all seemed to be good fun.—Maurice Brooks, *French Creek, W. Va.*

Status of the Genus Geranoaëtus.—With the discovery during recent years of remains of eagles in fossil deposits ranging from the Miocene to the Pleistocene several of the larger species have been described in the genus *Geranoaëtus*, three having been thus named by the present writer. General resemblance of these fossil bones in form to living *G. melanoleucus* is close and this current genus has been accepted without particular question as to its validity. During recent studies of another fossil species of this group I took occasion to compare the metatarsi of *Geranoaëtus melanoleucus* and those of several species of *Buteo* to find that no character except that of size separated them. This same condition held for other skeletal elements. Externally *Geranoaëtus* has been separated from *Buteo* on larger size and proportionally shorter tail as compared to the wing. In the various species of *Buteo* there is considerable difference in the relative length of the tail, grading down to *Buteo jakal* where it is less in relation to the wing than in *Geranoaëtus melanoleucus*, thus eliminating that character of difference. As size alone cannot be considered of generic value *Geranoaëtus* becomes a synonym of *Buteo*. The various species, fossil and living, formerly placed in *Geranoaëtus* will therefore stand as follows:

Buteo dananus (Marsh). Miocene.
Buteo ales (Wetmore). Miocene.
Buteo contortus (Wetmore). Upper Miocene.
Buteo conterminus (Wetmore). Lower Pliocene.
Buteo grinnelli (Miller). Pleistocene.
Buteo fragilis (Miller). Pleistocene.
Buteo melanoleucus (Vieillot). Modern.

There may be mentioned as of the same assemblage the fossil *Buteo typhoius* Wetmore from the Upper Miocene of the Snake Creek beds in Nebraska.—ALEXANDER WETMORE, *U. S. National Museum.*

A Black Gyrfalcon (Falco rusticolus obsoletus) from New Hampshire.—A bird of this form was shot "about twenty miles this side, (i. e. southeastward) of Colebrook, New Hampshire," October 22, 1915, and was brought to a taxidermist in Portland, Maine. It remained uncalled for and I purchased it. It is now deposited in the collection of the Portland Society of Natural History.—ARTHUR H. NORTON, *Museum Natural History, Portland, Maine.*

Turkey Vulture at Ludlow, Mass.—On September 17, 1932, a little party of bird-lovers was picnicking on the shores of the big Springfield Reservoir in Ludlow. We saw what we at first took for an Osprey, but as it came nearer we all saw that its underparts were not white but black, the wings not bent much at the midway point, and their tips up-tilted, wide, each feather deeply separated. Approaching us up-wind, lightly and airily but slowly, it passed between us and the sun, which shone through its wings and gave their under surface the appearance of an elaborate pattern in light and dark grays. A puff turned it northward and for a second we

caught the reflection of sunlight on its upper-parts, which shone bronzily. Righting itself, it passed us, westward, very near, and we all noticed its unnaturally small head and unusually long tail with very rounded end; so, despite the tricks the sun had played with it, there could be no question that it was a Turkey Vulture—immature, since the head showed no red—that had strayed or been blown a long way from home. It seems, this is the second record for the Connecticut Valley in Massachusetts—the first being a specimen in the Springfield Museum of Natural History that was shot at Becket (40 miles farther west) on June 8, 1905.—S. A. Eliot, Jr., *Northampton, Mass.*

A Second Specimen of the Fossil Bird Bathornis veredus.[1]—In fossil material collected in the summer of 1932 under direction of Mr. C. W. Gilmore, Curator of Vertebrate Paleontology in the U. S. National Museum, there is included the distal end of a left metatarsus of a bird of considerable interest since it develops on careful study that it is a second specimen of *Bathornis veredus* Wetmore.[2]

The specimen in question (Cat. No. 12,705 U. S. Nat. Mus. Div. Vert. Pal.) was obtained in the Titanotherium beds of the Oligocene on the ranch of Geo. Everson, eleven miles northwest of Crawford, Nebraska, on July 13, 1932, by M. V. Walker. It includes the distal portion of the bone, with the fourth trochlea missing, and the shaft more or less crushed and flattened so that the original form is obscured.

This specimen when compared with the type of *Bathornis veredus* agrees closely in size and details with the single exception that the second trochlea viewed from its posterior surface is somewhat broader and heavier on its lower, free end. Other characters appear identical in the two specimens, the type being from the right side. The difference noted is considered an individual variation, particularly in view of the fact that the deposits in the Oligocene from which these two specimens have come are not widely separated in point of time.

Following is a detailed description of the new specimen: A groove indicated leading into the inferior foramen, only the upper margin of which is present; middle trochlea strong and robust with well marked excavations on either side, and a pronounced groove extending around articular surface, which on the anterior surface terminates at the upper end in a slight depression; outer flange of groove on posterior surface projecting slightly beyond inner; lower margin of inner trochlea not reaching to center of middle trochlea; inner trochlea flattened laterally, with deep excavations on inner and outer faces, square and blocklike in form, posteriorly nearly as wide as anteriorly; a slight groove on posterior surface; margin produced posteriorly as a compressed plate that, viewed laterally, is rounded in outline; inner trochlea decidedly small when compared with middle

[1] Published with permission of the Secretary of the Smithsonian Institution.

[2] *Bathornis veredus* Wetmore, Proc. Colorado Mus. Nat. Hist., vol. 7, no. 2, 1927, p. 11, figs. 19–23. Chadron, Oligocene, Weld County, Colorado.

trochlea. Specimen heavily fossilized, light grayish white in color. Breadth of middle trochlea 7.6 mm., breadth of inner trochlea 6.9 mm. Other pertinent measurements cannot be made due to crushing.

The supposition that *Bathornis* might possibly have a first toe or hallux is not borne out in this second specimen and on examination of the two specimens of *veredus* now available it appears to be definitely established that the first toe was missing.

Re-examination of the characters of *Bathornis* in light of this second specimen, with certain additional comparative material in modern birds not previously available, leads me to the conclusion that I was in error in placing the subfamily *Bathornithinae* in the *Oedicnemidae* since it appears that it should be grouped in the *Cariamidae*. The superficial resemblance in the lower end of the metatarsus in *Cariama* and the different genera of *Oedicnemidae* is remarkably close due to covergence in development from similarities in habits and mode of life. In the relative position of the trochlea *Bathornis* is closest to the thick-knees, and it was this that led me formerly to allocate it in that family. The form and structure of separate trochlea and of the inferior foramen as well as of the shaft are distinctly those of *Cariama*.

The genus *Bathornis* has the inner trochlea projecting less posteriorly than the outer, while *Cariama* has the two on about the same level. *Bathornis veredus* was slightly larger than the modern *Cariama cristata*. Its allocation with that group introduces a new element into the avifauna of North America, as *Cariama* and *Chunga* the two living genera of the *Cariamidae* are confined to the central portions of South America.—Alexander Wetmore, *U. S. National Museum, Washington, D. C.*

Sight Records of the Eskimo Curlew.—There is one certain way to identify the Eskimo Curlew in the field and that is not mentioned in Dr. Murphy's careful note in the January 'Auk.' All the points he gives are, it seems to me, too indefinite for a positive identification, or even for "a probable record" of a bird that many consider extinct. Young male Hudsonian Curlews may have shorter bills than some Eskimo Curlews. One in my collection has a bill 2.25 inches long, and the bills of the Eskimo Curlew are stated to vary between 2.00 and 2.58 inches. Tameness is suggestive of the Eskimo Curlew, but young Hudsonian Curlews may be very tame. I entirely agree with Forbush in his 'Birds of Massachusetts,' when he states under "Field Marks" of the Eskimo Curlew, "None that can be depended upon to distinguish the bird from the Hudsonian Curlew, unless the unbarred primaries can be seen distinctly when spread." I have seen the barred underside of the primaries of the Hudsonian Curlew in flight and as they occasionally raise their wings on alighting. It is not a difficult field mark to make out if one looks for it, and in the same way the plain buffy underside of the primaries in the Eskimo Curlew is a means of positive identification.—Charles W. Townsend, *Ipswich, Mass.*

Winter Range of Long-billed Curlew and Piping Plover.—On January 16, 1933, three specimens of *Numenius a. americanus* were seen and watched for a long while at Cape Island (U. S. Wild Life Refuge), South Carolina, by the writer and others. They were watched on the ground and in flight with and without 6x and 8x glasses, at a range of from fifty to one hundred yards. The large size, cinnamon color and characteristic whistles, together with the excessively long bills were unmistakable. The birds were not at all shy and were left on the flats after intensive study.

A. C. Bent in his 'Life Histories of North American Shore-birds,' gives the winter range of *americanus* as ". . . east to formerly South Carolina (Charleston and Frogmore)." Charleston is some sixty miles south of Cape Island and Frogmore still farther, so that this record is apparently the farthest north point for *americanus* on the Atlantic coast in winter. The same statement applies to the Piping Plover (*Charadrius melodus*), three of which were observed at the same time.—ALEXANDER SPRUNT, JR., *92 South Battery, Charleston, S. C.*

The Yellow-legs Wintering in South Carolina.—This winter (1932–33) the Lesser Yellow-legs (*Totanus flavipes*) has established a first winter record for South Carolina.

In every month I have seen from one to twelve birds of this species on Jones Island, Turtle Island, and in an open marsh of the mainland along the Savannah River. Usually the Greater Yellow-legs, always a winter visitor here, has been present, and has furnished a good means of comparison, though to one familiar with the bird no control is necessary.

In the square mile of flooded open marsh mentioned before, I, today (February 16), found at least one hundred of the Lesser Yellow-legs, walking gingerly on floating drift over six or eight inches of water. These, however, may be early migrants.—IVAN R. TOMKINS, *U. S. Dredge Morgan, Savannah, Ga.*

Gull-billed Tern Nesting at Pensacola, Florida.—On July 10, 1932, the writer and others found a nest and two eggs of the Gull-billed Tern (*Gelochelidon nilotica aranea*) in a small colony of Black Skimmers and Least Terns about six miles west of the entrance of Pensacola Bay. The nest was merely a depression in the sand, similar to those made by the Black Skimmers, lined with broken bits of rotted driftwood. The site of the colony was about fifty yards back of the Gulf beach on an extensive, dry sand-flat, well above the reach of any but storm tides.

Since neither of the birds would return to the nest while we were in the vicinity and the identity of the nest could not be proven, another visit was made on July 17. On this occasion, one of the eggs was found to have just hatched, and an adult bird was observed several times to return to the nest and settle down upon it. Our intrusion was resented with much noise and with an exhibition of boldness even greater than I have ever witnessed on

the part of the fearless Least Tern. Several times the adult birds' diving flights brought them almost within arm's length of one or another of the intruders. A still later visit for the purpose of banding the young birds resulted in disappointment, for there was no sign of young or adults.

As this species has long been known to have bred not more than 75 miles to the westward (A. H. Howell, Birds of Alabama, p. 27, 1924) it is not unlikely that it has nested in extreme western Florida before, but the foregoing is apparently the only recorded instance.—FRANCIS M. WESTON, *U. S. Naval Air Station, Pensacola, Fla.*

An Oregon Record of the Red-legged Kittiwake (Rissa brevirostris).—On the morning of January 28, 1933, an adult female Red-legged Kittiwake (*Rissa brevirostris*), was found dead on the ocean beach at De-Lake, Lincoln County, Oregon. It was so badly oil-smeared as to render identification impossible, but the short stubby bill and bright feet showing through the oil and dirt aroused curiosity and it was saved. When cleaned it proved to be a fine specimen of this species. The bird was somewhat torn and the viscera partly eaten out when found by my companion, C. A. Leichhardt, who brought it to me. It is now No. 2200 in my collection.

This is, so far as I can find, the first specimen of the Red-legged Kittiwake taken within continental United States. There has been a great southward movement of unusual northern sea-fowl off the Oregon coast this year. Several Pacific Kittiwakes have been taken, and numerous Horned Puffins and Ancient Murrelets have come southward only to fall victims to the oil discharged from boats at sea. These, together with hundreds of California Murres, as well as numbers of Marbled Murrelets, Rhinoceros Auklets, Cassin's Auklets and Tufted Puffins, have been found dead or dying on the beaches, the great majority coated with oil. This Kittiwake adds one more to the list of those affected.

The bird measures in millimeters as follows: Wing, 313; tail, 128; tarsus, 30; toe, without claw, 39; culmen, 26; bill at base, 12; bill at angle, 11. The bill in the fresh bird is pale lemon yellow, somewhat tinted with greenish, the eye-ring red, and the mouth lining brilliant orange red of almost the same bright shade as the feet and legs. The eyes were badly shriveled, but appeared deep blue black. There is an almost microscopic nail on each hind toe, and the rest of the plumage agrees perfectly with Dwight's description of winter plumage for the species.—IRA N. GABRIELSON, *Portland, Oregon.*

Great Black-backed Gull in Maryland.—The fact that I find but a single published note on the occurrence of *Larus marinus* in Maryland, and that nearly forty years old (Kirkwood, Trans. Maryland Acad. of Sci., 1895, 250), leads me to place on record a Black-back that I saw on January 23, 1933. The bird was fully adult, and was approached by motor-boat so closely that its identification would have been certain even without the aid of my 6-power binocular. When first seen it was resting alone, though there were several Herring Gulls in the vicinity, on the waters of Tangier

Sound, just off the eastern shore of Bloodsworth Island, about half way up Chesapeake Bay. The boatman said that he often sees gulls with black backs in this neighborhood.

Through the courtesy of the observer, Mr. S. E. Perkins, III, of Indianapolis, I can add the following sight records for the Atlantic Coast: On October 6 and again on October 17, 1931, a single Black-back was seen standing with twenty-five or thirty Herring and Ring-billed Gulls at a pool on the beach about eight miles south of Ocean City, Maryland; on October 24, five were seen with other gulls at the edge of the surf a mile north of the end of the Ocean City boardwalk; and on November 1, 1931, a single Black-back was seen near the same place. All birds were observed through 8-power glasses from a distance of about 300 yards.—Ernest G. Holt, *National Association of Audubon Societies, New York City.*

Great Black-backed Gull on the South Carolina Coast.—On November 24, 1932, I was in company with a friend on St. Helena Sound, Beaufort Co., S. C., off Coffins Point. When about three miles off shore, near the small islands of the Sound, we saw a flock of sea birds hovering about a particular spot on the water. When we had approached nearer we recognized among the gulls and a few terns, which made up the flock, two birds much larger than the others one with a very dark back and blackish streaks on its head and the other quite brown. I was greatly surprised to realize that they were Black-backed Gulls (*Larus marinus*) with which I was familiar on the New England coast but never expected to see here.

So far as I can ascertain the species has never been recorded on the South Carolina coast and these birds would seem to constitute the first record for the state. Even on the Virginia coast it is a very rare bird.—H. L. Harllee, *Florence, S. C.*

Brünnich's Murres Destroyed by Storm.—In the severe northeast storm of January 25–28, 1933, a number of Brünnich's Murres (*Uria lomvia lomvia*), dead and dying were washed ashore on Ipswich Beach. Mr. Wendell Taber found three on January 29, one just expiring. On the 30th, I found three more, one alive but unable to fly or to buffet the waves, and on February 3, three more or nine in all. There was no trace of oil on the feathers, all were much emaciated and one that I examined had an empty stomach. It is probable that they were unable to obtain food during the storm in the absence of sheltering islands, and that they succumbed to starvation and exhaustion due to the high seas.—Charles W. Townsend, *Ipswich, Mass.*

Brünnich's Murre on Staten Island, N. Y.—On January 8, 1933, I found a dead Brunnich's Murre (*Uria lomvia lomvia*) on the salt meadows about half a mile from Oakwood Beach, Staten Island, N. Y. It had evidently been shot a few days previously. The specimen is now in the Staten Island Museum.—Marc C. Rich, *120 Broadway, New York City.*

Eastern Mourning Dove Migrating to Cuba?—A letter received under date of November 18, 1932, from Wm. W. Demeritt, of Key West, Florida, who operates a banding station at that point, contains important information relative to the movements of the Eastern Mourning Dove (*Zenaidura macroura carolinensis*).

"Hunters in general agree that there have been more doves here this season than have ever been seen in any previous like season. There have been hundreds with us as is evidenced by the fact that I have banded 380 to date.

"I just returned from the traps; banded seven and had four repeaters. While there I observed a White-winged Dove in the vicinity of the traps and one was shot a few days ago. . . . "One of my returns, that was trapped on the 12th instant, was banded on January 2, 1932, and he returned to the station where he was banded, was caught again and released. When I removed him from the trap I remarked: 'What a beautiful large male he was' and on checking the number on his band I found that I had recorded the same fact on January 2, 1932.

"I recently observed over a thousand doves take their departure for Cuba. I was banding doves late one evening recently and I noticed how disturbed and restless the birds in that vicinity appeared to be. I waited and watched them and just before dark they took off, first one flock of about 500 and they were followed immediately by a second flock of 500 or more. They were flying about 1000 feet apart . . . and they shaped their course for Cuba, 90 miles away."

An examination of the ranges ascribed to *carolinensis* in both the 1910 and the 1931 Check-Lists fails to indicate that this race ever has been definitely recorded from any of the West Indies other than the Bahamas, the form recognized by recent authors as occurring in most Caribbean regions being the West Indian or Cuban Mourning Dove, *Z. m. macroura*.

At the time of Audubon, the Mourning Dove apparently did not occur (or if present, was so uncommon that it was not detected) on the Florida Keys. Nevertheless, by the late seventies, according to Maynard,[1] it was a common species throughout this region. In this statement Howell[2] acquiesces, and this view is further confirmed by the letter above quoted.

When consideration is given to the relatively narrow water channel between Key West and Cuba, the well-known powerful flight of the Mourning Dove, and the observation of Mr. Demeritt, it would appear almost certain that Cuba, and probably other islands of the Caribbean region, will eventually be added to the winter range of *Z. m. carolinensis*.—FREDERICK C. LINCOLN, *Biological Survey, Washington, D. C.*

Western Mourning Dove in Central Mexico.—Records of *Zenaidura* in the interior of Mexico do not appear to be numerous, so the following case seems worthy of publication: An immature Mourning Dove (con-

[1] The Birds of Eastern North America, p. 344.
[2] Florida Bird Life, pp. 278–279.

sidered upon geographic grounds to be the western form, *Z. m. marginella*) was given band No. B342726, on June 7, 1932, at Fairmount, North Dakota, by G. C. Bierens. It was killed by Valentin Hernandez at Cortazar, State of Guanajuato, Mexico, on October 19, 1932. The locality of recovery is in the central part of the country.—FREDERICK C. LINCOLN, *Biological Survey, Washington, D. C.*

Testicular Asymmetry in the Madagascar Coucal.—In a paper entitled "Testicular Asymmetry and Sex Ratio in Birds," published in 1927,[1] Friedmann recalls the work of Riddle[2] with pigeons, in which the sex ratio was found to be interrelated apparently with discrepancy in the size of testes; excess of males was always correlated with a proportionately larger left testis, while in birds with the two testes equal in size, the sex ratio was approximately one to one.

Friedmann found that in general there seemed to be no correlation between relative size of testes and the sex ratio in wild birds, but in some small groups of species this correlation seemed to exist. In the cowbirds this was true, and also it was correlated with sexual dimorphism, the species with larger left testes showing sexual dimorphism as well as a preponderance of males, while those with equal testes did not.

In the 169 species examined by Friedmann, none had the right testis larger than the left. The condition in the Madagascar Coucal (*Centropus t. toulou*), however, differs from any condition that Friedmann reports. In 43 males of this species examined during my collecting in Madagascar, the right testis was always larger than the left, which was atrophied, never being firm and oval, and never showing any enlargement in the breeding season, even when the right was at its maximum size.

The sex ratio of these birds, judging from the specimens collected, for I could not tell the sexes apart in life, was approximately one (43 males and 40 females were collected). The sexes are similar in plumage, the only evident sexual dimorphism being the larger size of the female. (Average wing: 41 males, 149 mm.; of 38 females, 165.8 mm.).

The thought arises that perhaps the smaller size of the left testis may be correlated with the smaller size of the male but in many hawks, in which the female is larger, this was not noted as being the case.

A similar condition of the right testis being larger than the left also exists in some of the African coucals, according to the data on the labels of specimens of the following species, collected by Dr. J. P. Chapin in Africa, and now in the collection of the American Museum of Natural History: *Centropus monachus*, *C. senegalensis*, and *C. grillii*.

One of the examples of *Centropus grillii* had the right testis enlarged while the left testis was wanting.

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[1] Biological Bulletin, LII, 1927, pp. 197–199.

[2] "Further Observations on the Relative Size of the Right and Left Testes of Pigeons in Health and Disease and as Influenced by Hybridity," The Anatomical Record, XIV, 1918, p. 334.

Friedmann (l. c., p. 204), strangely enough, records that in *Centropus superciliosus* the left testis is the larger.

My present evidence goes to support Friedmann's statement that in general no correlation seems to exist between the size of testes and the sex ratio in birds; nor can a general statement be made regarding the relative size of the testes and sexual dimorphism.—A. L. Rand, *Amer. Mus. Nat. Hist., New York.*

The Barn Owl (Tyto alba pratincola) in Maine.—Though reports of the Barn Owl at Falmouth, Maine, crept into print several decades ago, Mr. Nathan C. Brown[1] showed that these were based upon unreliable data.

We now have three reliable records of the occurrence of the bird in this state. A male, now in the collection of Dr. Henry H. Brock (to whom I am indebted for the privilege of reporting this occurrence), was shot in the limits of Biddeford, October 4, 1923.

Another was caught alive in a garage in Portland, October 26, 1927, and died the following day.[2] I saw both of these birds a few days after they were mounted.

The third, a male, now in my collection, was taken on Mosher's Island, town of Cumberland, a day or two before December 12, 1927, on which day I received it in the flesh. It was very lean and the stomach was empty.—Arthur H. Norton, *Museum Natural History, Portland, Maine.*

Early Nesting of the Great Horned Owl.—On January 27 I was taking one of my accustomed hikes in a woods near my home in Andover, Alleghany Co., N. Y., when I saw a pair of Great Horned Owls flying low among the trees. Nearby, in a beech tree, I observed a nest which I knew was a last year's domicile of a Red-tailed Hawk. Twigs, littering the ground under the nest, indicated a renovation above and climbing the sixty feet of straight tree trunk, I found the nest enlarged and reconditioned. It was lined neatly with owl feathers and dry green beech leaves. I wondered where the owls could have secured the sage green leaves, as all the leaves which I could find were brown.

On January 29, with temperature near zero, I again climbed the tree. Mother owl stayed on the nest until I was about to peer over the great rim. I was rewarded by finding one nearly round chalky white egg, partially hidden in the soft feathers of the lining. On February 5, there were two eggs, with incubation apparently well started. From this fact, I feel confident that both were laid in January.

A week of snow and severe winter weather then passed, with four sub-zero nights. Wondering if these might have caused the owl to forsake her nest I visited the woods on February 12. From a rise of ground above the nest-tree, with binoculars, I could look down on the snow-covered nest. Protruding above the snow the owl's head was plainly seen with the dis-

[1] 1882, Brown, Bull. Nutt. Orn. Cl. VII, 58

[2] 1927, Haven, Maine Nat. VII, 157–158.

tinguishing ear tufts rising like sentries on duty. She was apparently undaunted by the severe cold and I did not disturb her.

I shall be interested to learn if other nestings of the Great Horned Owl have been recorded, in this latitude, in January.—C. Huber Watson, *Andover, N. Y.*

Great Crested Flycatcher in New Jersey in November.—On November 25, 1932, Mr. Warren F. Eaton and I saw a Great Crested Flycatcher at Barnegat Light, N. J. It was under observation for half an hour and the olive colored head, dark gray breast, light wing-bars and rufous inner webs of the tail feathers were all noted, and its characteristic call was heard.

The bird was not an Arkansas Flycatcher, as might be supposed from the date, for I am quite familiar with that species.

Mr. Joseph W. Tatum of Haddonfield, N. J., I am informed, also saw the bird at the same place at about the same time.—Marc C. Rich, 120 *Broadway, New York.*

Lead-colored Bush-Tit near San Antonio, Texas.—On January 22, 1932, I saw three small birds in the woods at my station, about six miles southwest of Lytle, Atascosa Co., Texas. They were feeding in the outer tops of small oak trees and when first seen were in company with Sennett's Titmice. Their notes which were uttered regularly were short and fairly clear. I collected one of them which proved to be a female Lead-colored Bush-Tit (*Psaltriparus minimus plumbeus*). This is far east of the regular known range of the bird in Texas.

The skin is now in the collection of the Cleveland Museum of Natural History as is a skin of a female Audubon's Oriole (*Icterus melanocephalus auduboni*) also taken near my station from a flock of four or more, on March 4, 1932; another species which is rare in this vicinity although recorded from near San Antonio by Attwater, years ago.—Albert J. B. Kirn, *Somerset, Texas.*

Eastern Robin Laying White Eggs.—I note in 'The Auk' for January, 1933, Mr. Hersey's question regarding the laying of white eggs by Robins.

In the Museum of Comparative Zoology there is an extraordinary clutch of eight eggs of the Eastern Robin collected at Arlington Heights, Mass., on June 11, 1924, by Arthur Loveridge, Assistant Curator of Herpetology.

Two of the eggs are of normal size and color and were nearly hatching. The remaining five eggs are white; two of them runts, and all showed faint traces of blood upon being blown.—W. Sprague Brooks, *Museum Comp. Zoöl., Cambridge, Mass.*

First Record of Starling (Sturnus vulgaris) for Nebraska.—Early in May, 1932, a pair of Starlings nested in a barn on the farm of C. R. Wiegers, Western, Nebraska. After the young had hatched and feathers

were formed, one of the birds fell from the nest and was killed by a cat. Mr. Wiegers sent this to Lincoln where it was identified by G. E. Hudson, Department of Zoology, University of Nebraska.

On June 7, an adult male Starling (now in possession of Dr. M. H. Swenk) was shot at the same location, and was identified by Dr. R. H. Wolcott.—CLAUDE R. WIEGERS, GEORGE E. HUDSON, JOHN L. MORRISON, *Lincoln, Neb.*

Cape May Warblers Destructive to Grapes.—To most ornithologists the idea of too many Cape May Warblers would seem fantastic, but during a number of seasons they have made themselves almost unwelcome fall visitors here in central West Virginia. Our first note of them as grape destroyers was made in 1909. We had at that time a small commercial vineyard, and during the first week in September, when the crop was just ripening, we were surprised to find in the vineyard swarms of Cape May Warblers. We were not long in doubt as to their purpose there, for within a week they had destroyed practically every grape we had. This habit has frequently been noted elsewhere (see Auk 1915, etc. and p. 233, beyond).

Their method was to puncture the skin of the berry at one point, extract a little juice, and move on to the next. They would systematically work over every berry in the cluster, if undisturbed, and they soon became exceedingly tame. It is no exaggeration to say that there were hundreds of the birds in the locality.

After the birds had made one puncture, swarms of bees and wasps soon finished the work of destruction. There was no way of frightening so many birds away, and we were driven to sacking our grapes in the future. The next year, 1910, they returned in numbers again, destroying practically all unsacked clusters, and completely cleaning out the vines of our neighbors, who raised just a few grapes for their home use.

From 1910 until 1931 their visits here were only occasional, and never in large numbers. In early September, 1931, however, they returned in droves. There was an unusually heavy grape crop in this region, but our crop lasted just two days after the invasion. Just as in previous years, they made one puncture, and the insects did the rest.

I received reports of their destructiveness from many points in this territory, several in Upshur, Lewis, Harrison, Randolph, Barbour, and Monongalia Counties. Everywhere it was the same story; one or two days and the vines were stripped. Some of the points at which they were reported are approximately one hundred miles from French Creek, Upshur County, where they were first reported in 1909.

Placing paper sacks on the clusters before ripening is, of course, a safeguard against both birds and insects, but it entails much labor and expense. Nevertheless, it is the only expedient that we have found at all satisfactory. We sacked our crop this last season, and when the birds came this fall they found only the smaller clusters available, so their damage was nominal.

I have observed Black-throated Green, Yellow, and Nashville Warblers

picking an occasional grape, and once I saw Black-throated Blue Warblers strip a large vine of Isabella grapes, but at no time has the damage from these species become serious. We have been forced to prepare each season for Cape Mays, however, and we have now learned how to have both birds and grapes.—MAURICE BROOKS, *French Creek, W. Va.*

Wilson's Warbler (Wilsonia pusilla) on the coast of South Carolina.—On the morning of November 8, 1932, my attention was attracted by a small bird, which proved to be a female or immature Wilson's Warbler (*Wilsonia pusilla*). It was in some dense bushes in our yard at Mount Pleasant. Although extremely active and restless, it allowed me to approach within eight feet and study its color and markings. It remained in the yard all that day and also the next (November 9), but was gone on the 10th.

This is the first specimen of *pusilla* to be seen in lower South Carolina. There are three previous records for the upper part of the state which have been recorded in 'The Auk.'—E. VON S. DINGLE, *Huger, S. C.*

English Sparrows Apparently Feeding on Larvae of Hornets.—On November 5, 1931, I noticed in a maple tree a short distance from my garage, a large hornet's nest. Upon closer examination I found that the entrance at the bottom was torn out and that the hole extended up on one side, leaving an opening about two and one half by three inches. The next afternoon I was surprised to see that the hole was considerably larger and as I was working in the yard I kept the nest under observation. About thirty minutes later there were eight English Sparrows (*Passer domesticus*) all females, in the branches directly under the nest. By concealing myself around the corner of the garage I was within thirty feet of them and could see very clearly what they were doing.

A bird would fly up and enter the hole disappearing completely, a moment later another would follow. When both were inside the nest they would invariably start fighting, and would come tumbling out, whereupon another bird would immediately enter the hole, this performance continued for about an hour. I observed these birds at this nest every day, sometimes in the morning and sometimes in the afternoon, for ten days, at the end of which time they had torn off the lower two thirds of the nest leaving only a very ragged third still hanging to the branches. The birds were evidently feeding on something they found in the nest but just what it was I have been unable to determine.

The only solution which occurs to me is that there might have been a late brood of hornets, the larvae of which did not have time to develop before the cold weather set in, or that some other insects were making the hornet's nest their winter quarters.

I am very certain the birds found something to eat in this nest from the way they acted and also from the fact that another nest of the same hornet in an apple tree about five hundred feet farther back on my lot was not

touched, and upon cutting this nest down and examining it carefully I found all the cells to be entirely empty.—C. B. GARDNER, *Norwalk, Ohio.*

A Troupial Collected at Columbus, Ohio.—On December 1, 1932, the writer collected a mature male Troupial (*Icterus icterus*) in the Botanical Gardens of Ohio State University at Columbus, Ohio. The bird had been reported several times in the University district during the previous month, feeding on insect larvae on backyard shrubbery or coming to feeding stations in company with a female Bronzed Grackle. The Troupial was observed and sketched by Mr. Stanley Bromley for some time on November 20 as it fed upon webworms on Catalpa trees. The bird appeared again at the Botanical Gardens in company with the Grackle during the noon hour on both November 30 and December 1, feeding on pupae attached to shrubbery or flying to a building to remove pupa cases from between the bricks of the walls. Others who watched the bird, noted that it sometimes fed upon berries and dried fruits.

The bird, when skinned, was found to be in good condition and very fat. The plumage, was in such good condition, that it would appear that the bird had not been caged since the last molt.

Troupials are rather commonly imported and exhibited or kept as caged birds but newspaper publicity and inquiry at all local pet stores and zoos have failed to discover information as to any birds known to have been caged in central Ohio. There is at the present time no *bona fide* record of the natural occurrence of the species anywhere in the United States. This collection then, probably does not represent a natural occurrence, but a record of an escaped caged bird which has been able to live for some time in a region far from its native habitat.—LAWRENCE E. HICKS, *Department of Botany, Ohio State University, Columbus, Ohio.*

An Abnormally Colored Western Evening Grosbeak.—On January 1, 1933, an adult female Western Evening Grosbeak (*Hesperiphona vespertina brooksi*) showing marked abnormal coloration was collected by the writer on the campus of the State College of Washington at Pullman, Washington. The specimen is now deposited in the collection of the Charles R. Conner Museum of this institution. The bird was seen from a distance several days earlier flying with a number of normally colored grosbeaks. Its lighter coloration made it very conspicuous among the normal individuals, but it was not white enough to be a pure albino.

In appearance, the specimen differs from typical Western Evening Grosbeaks in these respects: the bill, nape, back and tips of the breast feathers, which in normal females are yellow-brown, are lemon-yellow in this bird. The wings and tail are very light gray, through which the normal white wing bars and tips of the inner webs of the tail may be seen; whereas typically colored birds have dull black wings and tails. The head and throat are slightly darker gray than the rest of the body. The eye color was normal.

Although at first sight this bird appears to be a partial albino, yet its coloration may better be explained genetically as follows: the yellow color of the bill, nape, back and breast may be due to the dropping out of the brown pigment in these areas, while the pigmentation of the wings, tail, and head may be described as a dilution of the brown pigment. Thus the resulting abnormal coloration may be caused by the inter-reaction of at least two sets of genetical factors, one for color pattern and the other for color intensity.—ARTHUR SVIHLA, *Chas. R. Conner Museum, Pullman, Washington.*

The Clay-colored Sparrow in Florida.—On April 18, 1932, I secured a female of this species at Sarasota, Florida. It was associating with Grasshopper Sparrows, a Pine-woods Sparrow, White-eyed Towhees and a pair of Florida Cardinals. The location was a tangle of vines and bushes with a grass lot and tufts of dead grass adjoining, which made an admirable retreat for such birds.

I at first thought that I had secured a specimen of *Spizella pallida*, but when I compared it with my skins from the West, slight variations were noticed, making the identification doubtful in my mind. Finally I submitted the bird to Dr. Witmer Stone. He wrote: "There is no doubt about it being a Clay-colored Sparrow (*S. pallida*). I compared it carefully with our series of this and allied forms and it agrees exactly with specimens from North Dakota."

This species has been recorded from Massachusetts, New Jersey, and South Carolina, but I am not aware of any record from Florida. Evidently this will add a species to the state list.—CHARLES L. PHILLIPS, *5 West Weir Street, Taunton, Mass.*

Eastern Henslow's Sparrow in North Carolina in Summer.—I wish to record the presence of Henslow's Sparrow (*Passerherbulus henslowi susurrans*) at Chapel Hill, N. C., during the summer of 1932.

The species was first noticed in the spring on April 15 and was observed irregularly until May 13, with single individuals on May 21 and 26 seen by Edmund Taylor.

The summer records are as follows: July 4, several heard and observed in Strowd's Low-grounds by Edmund Taylor and Henry Rankin; August 2, several seen in the same spot by Eugene Odum; August 19, two seen by the writer, one of which was shot and is in Mr. Odum's collection.

While Mr. C. S. Brimley points out to me that the birds might have been post-breeding stragglers, the July 4 date would seem to indicate a summering individual and the species may yet be found to be a regular summer resident.—COIT M. COKER, *Chapel Hill Ornithological Club, Chapel Hill, N. C.*

Harris's Sparrow in Elkhart Co., Indiana.—On October 28, 1932, about two miles north of Elkhart, Ind., I trapped a strange sparrow which I kept in a cage for three weeks and then gave it to Mr. Esten, of Indian-

apolis, who identified it as a Harris's Sparrow (*Zonotrichia querula*). This would seem to be the most eastern capture of the species in the state. The records for Fort Wayne, April 24, 1920, and Williamsburg, May 12, 1925, were sight records.—Raymond J. Fleetwood, *Kurtz, Indiana.*

Shufeldt's Junco in the East.—Mr. Clarence F. Stone was quite correct in saying in the January 'Auk,' "according to the last edition of the A. O. U. 'Check-List'" his was the first record of Shufeldt's Junco east of Illinois. There are, however, two records for Massachusetts that he overlooked. In the Auk, 1931, vol. XLVIII, p. 274, I reported, too late for the 'Check-List,' a Shufeldt's Junco that I collected at Ipswich on January 30, 1931. I also referred to one collected at Wellesley by Mr. Albert P. Morse on January 28, 1919, and reported by him under the name of *Junco oreganus couesi* in the 'Bulletin of the Essex County Ornithological Club,' II, 1920, p. 13. My specimen is now in the Peabody Museum in Salem, Mr. Morse's, in the Museum of the Boston Society of Natural History.—Charles W. Townsend, *Ipswich, Mass.*

The Song Sparrow Now a Breeding Bird in South Carolina.—On May 25, 1931, while engaged in field work in Greenville County, South Carolina, in the extreme northwestern edge of the State, the writer saw a pair of Song Sparrows (*Melospiza melodia melodia*) carrying food to young just out of the nest. They were in underbrush fringing a stream that flowed through the edge of a clearing, a spot typical of the haunts of this species here in the southern Appalachians. This was in Saluda Gap, at an elevation of approximately eighteen hundred feet, and within a few miles of the North Carolina line. There is little question that the Song Sparrow has in recent years steadily extended its range southward through the mountains, but its spread eastward has been perceptibly slower. At present the distribution of this race south of Virginia is limited during the summer months to the mountains, and should this preference continue to be shown these birds will in future years be confined to a very limited portion of South Carolina. This is, as far as can be ascertained, the first definite breeding record for the state.—Thos. D. Burleigh, *Biological Survey, Asheville, North Carolina.*

Lapland Longspur: An Addition to the Louisiana List.—I record herewith the taking of an adult male Lapland Longspur (*Calcarius lapponicus lapponicus*) near Monroe, Louisiana, in Ouachita Parish, on December 22, 1932. As far as it is at present ascertainable, this form has never been recorded this far south.

The species was first seen on December 19 as it was feeding along the snow-covered sand flats bordering Lake Beulah, a saltwater body within the city of Monroe. It was exceedingly tame and allowed me to approach within several feet as it dodged from behind one clod to the next.

Again, on December 21, two more individuals were seen in a widely separated locality. On December 22, while traversing the fields bordering

the Ouachita River south of Monroe in company with Messrs. John S. Campbell and Frank C. Dill, a flock estimated at 2000 in number was found. The birds were feeding energetically among the cotton rows in which only the dead stalks of the cotton plants still remained. When disturbed they all arose at once, wheeled several times, and amid a wild confusion of chipping and whistling alighted in another section of the field.

Several specimens were collected, of which one was placed in the Louisiana State University Museum. A small flock of approximately thirty-five was observed in the same locality on December 23. After that no visits were made to the place, nor was the species recorded elsewhere.

The appearance of the bird in northern Louisiana is probably in line with the cold wave that swept south to the coast during the week that preceded Christmas, accompanied by three inches of snow and sleet, the first in three years.—GEORGE H. LOWERY, JR., *Department of Zoology, Louisiana State University, Baton Rouge, Louisiana.*

An Eastern Snow Bunting from Georgia.—On December 24, 1932, I was fortunate enough to find a Snow Bunting, presumably of the eastern race (*Plectrophenax nivalis nivalis*) on Oysterbed Island, and collected it. The bird, a male and reasonably fat, was on a sandhill that resembled somewhat the windswept hillsides frequented by this species in winter in the more northern states.

Mr. Arthur H. Howell answered my inquiry about other Georgia records, and I can do no better than to quote him: "Your record of a Snow Bunting on Oysterbed Island appears to be the first definite record from Georgia. Several of the manuals and check-lists mention Georgia in its range and apparently all these references go back to Baird, Brewer and Ridgway (Hist. No. Amer. Birds, Vol. 1, p. 512, 1874) where Georgia is given in the range, but without definite data. A search of the U. S. National Museum collection fails to reveal a specimen from Georgia."—IVAN R. TOMKINS, *U. S. Dredge Morgan, Savannah, Ga.*

Notes from Northern Steuben Co., N. Y.—*Bombycilla garrula pallidiceps.* BOHEMIAN WAXWING.—Following a terrific blizzard and hip deep snow on January 19, 1920, I found twenty-four Bohemian Waxwings feeding on the abundance of shriveled fruit along a choke-cherry hedge. With the flock was one Cedar Waxwing (*Bombycilla cedorum*). They were so free from shyness that I was able to approach within ten feet while they flitted through the tangled branches. At times they came towards me and hopped on the thin snow beneath the thicket, feeding on the dried fruit that they had rattled from the trees. These Bohemian birds were again seen in the same hedge on January 20, when they moved on.

Cryptoglaux acadica. SAW-WHET OWL.—On June 20, 1919, my attention was attracted by the alarm notes of the Black-throated Green and Canada Warblers and soon I discovered that the cause of their agitation was the presence of a Saw-whet Owl hidden in a thicket of hemlocks.

For the next two days I found this diminutive owl in the same place just back of the lodge, and always perched on a lower limb next to the body of the tree. The species is very rare here and has not been seen since.

Thryothorus l. ludovicianus. CAROLINA WREN.—Early in November 1929, a Carolina Wren came to the hemlock clad gully that surrounds the lodge, and was seen late as December 18, when it disappeared. My impression is that this wren did not fly away, but became the victim of some owl, many of which inhabit these woods.

This wren is rare in this section, but was also reported by Mr. Verdi Burtch at Branchport during the first week of November, 1932.

Passerherbulus henslowi susurrans. EASTERN HENSLOW'S SPARROW.—Until May 19, 1928, this secretive sparrow had not been found in this section. On that date I found two pairs in a hummocky swale surrounded by a higher part of an abandoned pasture which had grown up to coarse weeds and clumps of briars. Each succeeding year, two or more pairs have occurred and remained to nest. They arrive as early as May 6 as noted by Mr. Chas. J. Spiker—who is a frequent visitor here and the birds are seen or heard all through the month of July, when the character of the location becomes so changed that evidently they seek other haunts. Since many farm fields hereabouts have been abandoned they have become forests of coarse weeds, thus creating typical haunts for the Henslow's Sparrow. That they are taking up with this locality, more and more, is evidenced by the fact that I located three pairs of birds in May 1932, each pair being separated a half mile from the next.

Bartramia longicauda. UPLAND PLOVER.—While this whole section is worked by competent bird observers, and this bird nests thirty miles north of here, near Canandaigua, yet it had never been seen in this locality until April 29, 1929, when a lone individual spent the forenoon in a field near the lodge. I put it up several times when it ascended high and uttered its dainty, mellow, whistle.

Phloeotomus pileatus abieticola. NORTHERN PILEATED WOODPECKER.—On May 13, 1930, while observing birds about the lodge, I was rather amazed to hear a Pileated Woodpecker come clattering down through the gully woods. The bird flashed past to some hemlocks just below camp. I began to imitate its bill tapping and soon succeeded in arousing its curiosity so that it came out of hiding and circled around over the chasm. In many portions of the state there have been extensive forest fires and I wondered if this bird was not driven out by the dense smoke in its native haunt.

Picoides arcticus. ARCTIC THREE-TOED WOODPECKER.—While rambling through cut over pine woods just back of the lodge, where the ground was littered with tops of pine trees, I heard on October 11, 1925, the unmistakable tearing of crisp, dried bark flakes and soon found the first Arctic Three-toed Woodpecker I have noted in this whole section of country.

The bird permitted close approach while it worked from one lopped pine tree top to another. So far as I can learn this occurrence is a record

for this and adjacent portions of the state.—Clarence F. Stone, *Chasm Lodge Bird Sanctuary, Branchport, N. Y.*

Concerning the Nesting Status of Certain Birds at Princeton, N. J.—The following notes form some additions to the data contained in 'The Birds of Princeton, N. J. and Vicinity,' by W. A. Babson (Bulletin of the Bird Club of Princeton University, Vol. I, No. 1, September 1901).

Cathartes aura septentrionalis. Turkey Vulture.—Babson failed to find this species nesting in the immediate locality, and this condition, so far as I am aware, has held good to the present year (1932) when, on May 5, Mrs. A. N. Pack of Princeton showed me a breeding place of the vulture which had been found some days previously on the wooded ridge known as Rocky Hill, just north of the town. Upon our approach to the spot we flushed what apparently was the parent from a pile of basaltic blocks. The two eggs were placed on the leafy floor of a dark recess or small cave, formed by the jumble of rocks and affording little more than enough space for the bird to turn around in. Later in the day the place was again visited by Mrs. Pack and the cavity found to be filled with sticks and rubbish, evidently by some 'vandal' who felt malignantly toward the birds but who for some reason did not take the eggs. Because the latter were too cold for hatching, they were collected by Professor A. H. Phillips, of Princeton University. He found incubation to be fairly well advanced. The shells remain in his collection.

Dendroica pensylvanica. Chestnut-sided Warbler.—Babson mentions this bird as "a common migrant and probably a rare summer resident . . . but there are no direct records [of breeding]." On June 17, 1932, Mr. Geoffrey Carlton and I heard two birds of this species singing repeatedly near 'Rockingham,' Washington's Headquarters (three miles northeast of Princeton). The songs came mostly from thickly bushed cut-over ground. On the same day Mr. Henry Norris Russell, Jr. and Mr. Frederick Loetcher, both of Princeton, discovered a nest containing four young of this species about two miles from town in the opposite direction. The nest was placed in a bush on the edge of deep woods but near a bushy pasture. On the following day, June 18, the discoverers of this nest took me to the locality, but we found that the young had flown and were being fed out of the nest by the female.

Passerculus sandwichensis savanna. Eastern Savannah Sparrow.—Mr. C. H. Rogers, Curator of the Princeton Museum of Zoology, has told me of finding a bird of this species singing in the vicinity of a stream flowing through a marshy meadow just north of the Walker-Gordon Dairy Farm, at a date suspiciously late in May, 1931. On the chance that the bird might remain to nest, Mr. Carlton gave this vicinity a casual but unsuccessful search in June of the same year. However, both on June 17 and 21, of the following year (1932), Mr. Russell saw a Savannah Sparrow and heard it singing each time in this same locality. Babson lists it only as a transient.

Passerherbulus henslowi susurrans. EASTERN HENSLOW'S SPARROW.—This bird is listed, as is the Chestnut-sided Warbler, among thirteen species which "probably breed every year," although Babson has no direct breeding records. On June 10, 1932, I found an adult Henslow's Sparrow with a mass of food in its bill in a high field north of town. In this same field, on June 12 of the preceding year, I flushed a fledgling of this species and succeeded in capturing it. The specimen was brought alive to the Princeton Museum of Zoology where it was satisfactorily identified and then brought back again to the place of capture and released. Adult Henslow's Sparrows which were present at the time of capture were still scolding when the young bird was returned.—LAIDLAW WILLIAMS, *Princeton, N. J.*

Water Birds Observed at Reading, Pa.—The following observations made during the past season in the immediate vicinity of Reading, Pennsylvania, may be worth recording. The fall migration here was noteworthy, several species new to the county list having been recorded.

Gavia stellata. RED-THROATED LOON.—One of this species visited Lake Ontelaunee during a severe northeaster, on November 10, 1932.

Phalacrocorax a. auritus. DOUBLE-CRESTED CORMORANT.—One was seen at Lake Ontelaunee on November 8, 1932.

Branta bernicla hrota. AMERICAN BRANT.—One came in to Lake Ontelaunee during the previously mentioned storm of November 10. This is apparently the first local record in over forty years.

Pisobia bairdi. BAIRD'S SANDPIPER.—One individual was seen on a mud flat at the head of Lake Ontelaunee on September 28, 1932. I had an excellent view of it both at rest and in flight, at short range and in good light, eliminating any possibility of error in identification.

Micropalama himantopus. STILT SANDPIPER.—On September 13, 1932, Dr. David Berkheimer identified two Stilt Sandpipers at Lake Ontelaunee. On the 18th I saw seven at same place, and one remained until the 25th. This is the first local record of this species for many years.

Phalaropus fulicarius. RED PHALAROPE.—During the severe northeasterly storm of November 10, three Red Phalaropes were on Lake Ontelaunee. I was previously familiar with both of our other phalaropes and immediately recognized these as different. The comparatively chunky build, thick bill, and conspicuously white crown were easily discernible at a distance of thirty yards.

Larus atricilla. LAUGHING GULL.—Two Laughing Gulls were brought in by the previously mentioned storm of November 10. This is also a new record for the County, and I took particular care to note all the field marks carefully.

Hydroprogne caspia imperator. AMERICAN CASPIAN TERN.—One, the second record in three years, was seen at Lake Ontelaunee on April 25.

Alle alle. DOVEKIE.—On November 19, 1932, following a series of storms, a Dovekie was picked up near Birdsboro and turned over to the

Reading Museum by Lester Leinbach, the County Game Protector.—Earl L. Poole, *Reading Public Museum, Reading, Pa.*

Winter Records for the Coastal Region of North Carolina.—A field trip of two weeks' duration (from January 5 to January 19), along the islands and coast of North Carolina, revealed a number of birds generally regarded as being uncommon in this area during the winter season.

In the 'Birds of North Carolina,' by Pearson, Brimley and Brimley (p. 136) the authors state that the Greater Yellow-legs (*Totanus melanoleucus*) ". . . has been recorded from Beaufort and Pea Island in February, and doubtless a limited number spend the winter along our shores." On January 8 at the Haynes-Laster Game Refuge on Portsmouth Island, fifteen individuals of this species were seen in one flock and smaller numbers were encountered from the 10th to the 14th on Portsmouth, Ocracoke, and Hatteras Islands. These birds were always associated with or in close proximity to other shore birds.

As many as 175 Sanderlings (*Crocethia alba*) and 44 Red-backed Sandpipers (*Pelidna a. sakhalina*) were seen in a single flock. Smaller numbers were observed daily on all the islands visited. A small number of Black-bellied Plovers (*Squatarola squatarola*) and Least Sandpipers (*Pisobia minutilla*) were often associated with them.

On the gravelly beach near the Coast Guard Station at Ocracoke, on January 10, I was able to approach within twenty feet of three Ruddy Turnstones (*Arenaria i. morinella*). The authors of the 'Birds of North Carolina' (p. 150) write that Turnstones occur on the ". . . coastal region during the migration, at least from March to early June and from mid August nearly to winter." This apparently is the first winter record.

Sixteen Oyster-catchers (*Haematopus p. palliatus*) were observed feeding on an exposed shoal on the preceding day, January 9, at Portsmouth.

Within fifty yards of the Coast Guard house at Ocracoke I picked up a dead Razor-billed Auk (*Alca torda*). This bird probably had been blown ashore during one of the recent storms. It was very thin and its stomach was entirely empty. Only two North Carolina records of this species, namely for birds taken in February, 1890, at Cape Lookout and Morehead, are given by Pearson, Brimley and Brimley (p. 24). Two additional January records have been noted since that time; Portsmouth, January 19, 1927 (Auk, 1927, p. 427) and Currituck Sound, January 29, 1923 (Auk, 1923, p. 317).

At Portsmouth, on January 9, two large red-billed terns were observed at close range. These were considered to be the Caspian Tern (*Hydroprogne c. imperator*), but none was collected. Near them three Gannets (*Moris bassana*) were also observed flying about fifty feet in the air. Suddenly, one of the latter birds saw a fish and plunged headlong into the water with such terrific force that it was completely submerged. When it came up, it was probably ten feet from the point where it struck the water. Its dive appeared to be nearly perpendicular.

Each day from the 6th to the 10th on Portsmouth and Ocracoke Islands one to three Catbirds (*Dumetella carolinensis*) were observed. Both their song and actions were typical of the summer season. They were observed eating the berries of holly (*Ilex* sp.) and juniper.

At Ocracoke, January 10, a male Maryland Yellow-throat (*Geothlypis trichas* subsp?) was encountered, and at Swan Quarter on the mainland coast, January 18, one Yellow Palm Warbler (*Dendroica p. hypochrysea*) was observed.

At various points along the sand dunes of Portsmouth, Ocracoke, and Hatteras Islands we saw a limited number of Ipswich Sparrows (*Passerculus princeps*). Undoubtedly this bird is an annual winter visitor to the region. In the 'Birds of North Carolina' the authors state (p. 235) that it is ". . . at present only recorded from Pea and Bodie Islands, and from Currituck County."—CLARENCE COTTAM, *U. S. Biological Survey, Washington, D. C.*

Notes from Western North Carolina.—These observations were made at Cone's Lake, on the edge of the village of Blowing Rock, N. C., at an altitude slightly below 4000 feet.

Florida c. caerulea. LITTLE BLUE HERON.—On August 8, 1932, I saw one in adult plumage and another in white on August 30, 1930. It is rare in North Carolina at this altitude and even lower down in the mountains it is more scarce in the blue than in the white plumage.

Sitta canadensis. RED-BREASTED NUTHATCH.—A single bird was seen on August 26, 1932. I have never found it in August at Blowing Rock previously although it is common on the slopes of Grandfather Mountain.

Regulus s. satrapa. EASTERN GOLDEN-CROWNED KINGLET.—On August 5, 1932, I found a pair feeding two young birds in a dense grove of spruce. I watched them as long as I cared to at close range and on several days. Once the family group came to the lower branches of a spruce within three feet of the ground and I almost succeeded in catching one of the young in my hand, although they could fly fairly well. The adults carried food to the young again and again just before my eyes. This seems to be fairly good evidence of the breeding of these birds at this unusually low altitude. Except for similar small patches of spruce there is no suitable breeding territory nearer than Grandfather Mountain, a dozen miles away. These birds could scarcely have travelled very far.

Vermivora peregrina. TENNESSEE WARBLER.—I saw this warbler here for the first time on Sept. 1, 1932, when I found three in immature plumage. —J. J. MURRAY, *Lexington, Virginia.*

Additional Notes from the North Carolina Mountains.—For several years past the writer and Dr. J. J. Murray have been contributing to 'The Auk' observations on the birds of the North Carolina mountains which supplement the accounts given in the 'Birds of North Carolina,' by Pearson and the Brimleys. The following from the Blowing Rock section are in line with this practice.

Buteo platypterus. BROAD-WINGED HAWK.—Only Buncombe County of the mountain counties is mentioned in its range but I have found it also in Watauga, Avery and Caldwell Counties. The greatest elevation at which it has been observed is 4200 feet (Watauga Co.).

Falco peregrinus anatum. DUCK HAWK.—A regular summer resident in Watauga and Avery counties in which lies Grandfather Mountain (5964 ft.). I have continuous records for each summer for nearly twelve years and it undoubtedly nests on Grandfather Mountain.

Falco columbarius columbarius. PIGEON HAWK.—Occurs regularly in late summer in Watauga, Avery and Buncombe Counties appearing usually in late August, once as early as the 15th (1932). From August 27 to October 1 (when I leave the mountains) it may be seen with fair regularity. It was noted on Mounts Pisgah, Mitchell and Grandfather in early September in 1929, '30 and '31.

Pipilo erythrophthalmus erythrophthalmus. RED-EYED TOWHEE.—Has been found incubating as late as July and Dr. Murray found one nest with three eggs on August 8, 1931. The young were hatched on the 9th and one was successfully reared.—ALEXANDER SPRUNT, JR., *92 South Battery, Charleston, S. C.*

Rare Birds in the North Carolina Mountains.—*Dendroica tigrina.* CAPE MAY WARBLER.—This warbler, though uncommon, makes a fairly regular appearance on my lawn in Waynesville, N. C., where it haunts a balsam fir, the dates ranging from April 24 to May 9. In fall I recorded it on October 23, 1906; October 7, 1913; October 4, 1914; September 29, 1916. My failure to secure further records may be due to the fact that I no longer supply the feast of grapes which the Cape Mays so greatly appreciate. I recall that one autumn I found a small flock of them on a row of grapes in my garden. The berries had been punctured and the birds sat sipping the juice, one male pausing frequently between drinks to sing his wiry little song.

Dendroica discolor. PRAIRIE WARBLER.—According to 'The Birds of North Carolina,' this species has not been found in the higher mountains, but I have the following records: Lake Lure, Henderson Co. April 25, 1928; Swain Co. May 22, 1929; Haywood Co. September 3, 1925. Lake Lure is on the outskirts of the mountains and has no considerable altitude, but the Haywood Co. record was made at an altitude of 2800 feet. The Swain Co. record would seem to indicate breeding in that locality. The bird was near Highway No. 10 and in sight of the Great Smokies. A bird of the same species was heard there the following year, though I made no record of the date.

Oporonis philadelphia. MOURNING WARBLER.—Male in full plumage seen singing about my house, May 29–31, 1926.

Seiurus motacilla. LOUISIANA WATER-THRUSH.—My latest record on this species is September 29, 1925.

Empidonax minimus. LEAST FLYCATCHER.—This little flycatcher, so

uncommon in North Carolina, can sometimes be found during the breeding season in the large apple orchards of Haywood Co., where it appears in late April or early May. According to the 'Birds of North Carolina' "Cairns in all his years of observation, found only one nest." My own luck might have been even worse but for the assistance of a black snake which for his own purposes located a nest full of young high up in a white pine on my lawn. I saved all the youngsters except one and hung them up in a small basket in the same tree, where they remained for a day before leaving.—MARION A. BOGGS, *Waynesville, N. C.*

Notes from Baldwin County, Alabama.—The following notes are submitted in extension of the data compiled by Arthur H. Howell in his 'Birds of Alabama' (1924).

Elanoides forficatus forficatus. SWALLOW-TAILED KITE.—One was seen flying over Fairhope (on Mobile Bay) by Duncan McIntosh on April 20, 1932. Howell says of this species "now extremely rare."

Charadrius nivosus tenuirostris. CUBAN SNOWY PLOVER.—On April 9, 1932, together with Homer Flagg and my son Kenneth Edwards, I found two nests of this bird at Gulf Shores on the Alabama coast about ten miles south of Foley, Ala. There were three eggs in each nest. On April 23, my two companions found five more nests about three miles west of the first location. Four contained three eggs and the other, two. Howell mentions the presence of the downy young of the Cuban Snowy Plover on the Alabama Coast, but has no note of finding a nest. The first two sets of eggs found were collected and sent to Mr. H. E. Wheeler, Curator of the Museum Department of the Birmingham (Ala.) Public Library.

Phaeopus hudsonicus. HUDSONIAN CURLEW.—At Gulf Shores on April 8, 1932, I saw, on the sand-bars, a Hudsonian Curlew, which makes the third state record for this species. (cf. Auk, Vol. XLVIII, 1931, p. 595.) Howell says "the only Alabama record is that of a specimen shot by E. G. Holt from a flock of nine at the west point of Dauphin Island, July 27, 1931."

Passerina ciris ciris. PAINTED BUNTING.—In the vicinity of Mobile and Fairhope many birds of this species were noted from April 8 to 19 by at least thirty-two observers. These figures represent a noteworthy invasion, since the Painted Bunting usually occurs singly and for a day or two only in the spring migration.—HELEN M. EDWARDS, *Fairhope, Ala.*

Some Recent Ohio Records.—The following observations were made, primarily by the writer, in Ohio from early December of 1931 to September of 1932, and appear to be worthy of recording. Some of these records are undoubtedly due to the abnormally warm weather of the early and middle parts of the winter of 1931–1932.

Phalocrocorax auritus auritus. DOUBLE-CRESTED CORMORANT.—An individual was noted at East Harbor (near Lake Erie), Ottawa County on March 20, 1932. This is an unusually early date of arrival for this species in Ohio and rather indicates a wintering bird.

Larus delawarensis. RING-BILLED GULL.—I received a letter in mid-June from Mr. Louis W. Campbell of Toledo, Ohio, to the effect that in the fore part of that month he and others had seen an odd white gull on Bay Point (the extreme northern tip of Sandusky Bay), Ottawa County, and that he took it to be an albino Ring-bill. On July 9, 1932 I collected this bird which was indeed an albino Ring-billed Gull. Its entire plumage was immaculate white and greatly worn, the first primary of each wing having but a slight trace of the vanes left for a distance of at least two inches from their tips, and the remaining primaries similarly worn in direct proportion to their size. The tip of the bill was light horn color. This was followed by a vague brownish ring which was lightest on the culmen. The basal two-thirds of the bill were grayish-white. The toes and webbing pale gray faintly tinged with yellow. The nails were dark gray.

Sterna forsteri. FORSTER'S TERN.—Five of these terns, two in the worn adult plumage and the others in immature plumage, were noted by Mr. Lee S. Roach and the writer at Buckeye Lake in Fairfield County on August 17, 1932. One of the immatures, a female, was collected. This is the third record for this species at this body of water within the last ten years, the other two occurring on October 20, 1923 and November 2, 1927. (Auk, 1928, p. 200.)

Sitta canadensis. RED-BREASTED NUTHATCH.—Reports coming into the Ohio Division of Conservation from various sections of Ohio, as well as my own observations, indicate that this species wintered in unusually large numbers, especially in the northern half of the state.

Cistothorus stellaris. SHORT-BILLED MARSH WREN.—On March 10, 1932, an individual of this species was found by Mr. E. L. Wickliff and myself along a small ditch on a wind and snow swept hillside in Jackson County, during the only cold period of the winter. At the time of collecting the temperature registered zero. It was a male, very fat, and in apparently excellent condition. I know of no other record for this species in Ohio in winter.

Geothlypis trichas brachidactyla. NORTHERN YELLOW-THROAT.—While feeding the waterfowl at East Harbor which had become greatly weakened during the severe and unexpected cold snap of mid-March, I discovered in the cattails beside a two foot high snow drift a male Northern Yellow-throat. The bird was collected and upon examination was found to be fat and in apparently good condition. There is at least one other winter record, a bird noted by various members of the Wheaton Club, in central Ohio from January to April of 1924, and recorded by Mr. C. F. Walker. (Auk, 1928, pp. 232–233.)

On this date and at the same place a PRAIRIE MARSH WREN (*Telmatodytes palustris dissaëptus*) was also seen. There is no doubt but that a few individuals of this last named bird winter practically every year in the Lake Erie marshes. (See Campbell, L. W., Auk, 1932, pp. 352–353.)

Sturnella neglecta. WESTERN MEADOWLARK.—On March 17, 1932, while Mr. E. L. Wickliff and I were making field observations of game birds

in central Grand Rapids Township, Wood County, we came upon a bird of this species, singing. The song was rather soft when first heard which gave the effect of being farther from us than it really was. It puzzled us greatly, reminding us somewhat of an Orchard Oriole's song in the distance. After finding the singer, but before it was possible to collect it, it flew away to join a group of Eastern Meadowlarks. This bird's call notes were vastly different from those of its eastern relative. Later in the year this same locality was visited in the hope that the bird might have remained there but no trace of it could be found.

Passerculus sandwichensis savanna. EASTERN SAVANNAH SPARROW.—A few individuals were noted wintering in four central Ohio counties (Union, Delaware, Licking and Fairfield). This seems to be the first record of its wintering in central Ohio.

Passerherbulus henslowi henslowi. WESTERN HENSLOW'S SPARROW.—One was seen by the writer in Union County on December 15, 1932, an unusually late date.—MILTON B. TRAUTMAN, *Ohio Division of Conservation, Columbus, Ohio.*

Birds and Motor Cars.—Continuing my note of April, 1929 ('Auk,' XLVI, 399), I may add the following facts, based on driving some forty thousand miles since that time, mostly in New England and mostly in the summer, these four years. As to number of birds dead in the highway: in 1929, I saw thirteen; in 1930, ten; in 1931, four; in 1932, twenty-two. Species identified were Domestic Pigeon, Woodcock, Kingbird, Phoebe, Purple Finch, English Sparrow, White-crowned Sparrow, Chipping Sparrow, Veery.

As to speed of flight, I have observed the following rates in miles-per-hour: Woodcock, five; Kingbird, twenty-three, sixteen, fifteen, fifteen (these last two a pair together in quivering flight); Goldfinch, sixteen, eighteen; Vesper Sparrow, seventeen; Chipping Sparrow, twenty, fifteen, fifteen (these last two together); Barn Swallow, twenty-three; Tree Swallow, twenty-four, twenty-four (these two members of a straggling migrating flock flying steadily south); Robin, twenty-three, twenty-one, twenty.—F. B. WHITE, *Concord, N. H.*

RECENT LITERATURE.

Chapin's 'Birds of the Belgian Congo.'[1]—As many of our readers are aware Dr. James P. Chapin, in 1909, when but twenty years of age, accompanied Herbert Lang on an expedition to the Belgian Congo, in the interests of the American Museum of Natural History. Contrary to original expectations their explorations lasted for five and a half years, involving a journey through the Congo forest of some 1800 miles and an intensive study of the zoology of the region northwest of Stanleyville, including the Ituri Forest and the savannas of the Uelle District, almost to the border of the Anglo-Egyptian Sudan.

Since his return he has been attached to the ornithological department of the American Museum while in the earlier years he pursued a course in biology in Columbia University, a combination of "factors" which has rendered him particularly competent for the investigations which he has since carried on. Besides a study of his own collections and notes, he has consulted the published literature on the bird life and physical characteristics of the Congo and has examined the collections of African birds in sixteen of the leading museums of America and Europe. Incidentally he made two additional visits to Africa in the interests of the Museum; one to the Ruenzori-Kivu Region with F. P. Matthews and DeWitt L. Sage, in 1926–7, and the other to Lukolela, in 1930–31.

The results of Dr. Chapin's studies, long looked forward to, are now being published by the American Museum, Part I, a volume of some 750 pages, having appeared on December 17, 1932.

After a hasty reading of this work we are overwhelmed with the mass of data that is presented and deeply impressed by the masterly manner in which it is discussed, while we are thoroughly convinced of the impossibility of adequately reviewing it in the short space at our disposal. We should therefore advise our readers to take the first opportunity of studying the report in its entirety.

Reversing the order of the contents we shall mention first, the "Systematic List of Species and Races with Notes on Distribution, Habits and Food," which forms approximately half of the volume and will be completed in the two parts which are to follow, the present installment taking us from the Ostriches to the Gallinaceous birds in the sequence of Wetmore and Miller's classification, which is familiar to those who consult the A. O. U. 'Check-List' and Peters' 'Birds of the World.'

Suffice it to say that this portion of the report is all that it should be, with keys to the species, full synonymy of Congo references, lists of specimens secured by the Expedition with descriptions, and paragraphs on

[1] The Birds of the Belgian Congo. Part I. By James P. Chapin. Bulletin of the American Museum of Natural History, Volume LXV, 1932. New York, December 15, (17), 1932. Pp. i–x + 1–756, Pls. I–X, figs. 1–208 and map. Price $8.50.

habits, distribution, food, plumages, etc., based upon the author's experiences and those of others. There are many excellent text figures, some from photographs but mainly from pen drawings of heads, feet, feathers, etc., as well as ten plates of birds from photographs in life, and a good map. Our only criticism is concerned with typography, with which the author probably had nothing to do, i. e. the printing of the lists of specimens and their description immediately after the synonymy, in the same type and without spacing or break of any kind, which makes them difficult to locate when consultation is desired.

Important as is this part of the work and much as we should like to discuss it more fully, the introductory portion seems still more to warrant our attention.

Here Dr. Chapin presents his data and conclusions on the many major problems that have come up in the faunal study of the region, and their perusal will impress the reader with what can be made of such a piece of research. The matter is arranged in ten chapters entitled: The Ornithological Exploration of the Belgian Congo; Topography and Geology; Climate; Faunal Relations and Subdivisions; Botanical Remarks on the Faunal Divisions; Bird Distribution and its Ecological Aspects; Typical Cases of Geographic Variation; Breeding Seasons; Bird Migration; Evolution and Relations of the Ethiopian Avifauna.

The mere titles do not, however, convey the breadth of treatment that the author has employed. Through many of the chapters runs a continuous discussion of the origin of species and subspecies, the part played (or not played!) by environment—food, climate, vegetation, etc., and by mutation. This part of the work, therefore, possesses an interest for biologists at large entirely apart from those who are concerned only with African ornithology. Dr. Chapin finds little in geological history to affect distribution of bird life or even plant life in the Congo and below 5000 feet elevation "the broad type of vegetation, whether forest or savanna, is independent of underlying geological conditions and even the soil is more a product of the rainfall and vegetation than of the particular rocks which it covers," a conclusion at which the reviewer arrived in his studies of plant distribution in southern New Jersey some years ago.

Climate and especially rainfall are discussed at considerable length and our author bases his faunal divisions of Africa mainly on the latter. "Temperature alone," he says, "seems to exert no marked influence on the distribution of animal and plant life until an elevation of 5000 feet is reached" but in the lowlands the abundance and seasonal distribution of rains are the important factors and "climate seems to affect birds mainly through the vegetation which it determines." As to climatic life zones as traced by Chapman in South America, he says: "A comparison . . . shows many points of agreement" and "a close parallelism might well be expected, when we recall how the various zones result from atmospheric conditions." He seems to allow rather more importance to this phase of distribution than in a previous paper in which he says: "The whole question

of plant and bird distribution in Africa, particularly in the lowlands, goes back to the distribution and abundance of rains."[1]

Referring to W. W. Bowen's recent argument in favor of a primary subdivision of the Ethiopian Region in life zones delimited by isotherms, he says, "I still prefer the separation of the West African Subregion on faunal grounds." Similar objections have more than once been made to Merriam's climatic zonal arrangement of the faunal divisions of North America on the grounds that the faunal relationship of north and south sections of the arid midwestern country have more in common than either has with its corresponding isothermic area in the eastern humid country (cf. Auk, 1933, p. 130). It would seem, however, largely a matter of which factor is considered primary, the boundaries of the several "faunas" remaining substantially the same.

Most interesting of all Dr. Chapin's chapters, perhaps, is that in which he discusses the ecology of the bird life of the several faunas and the evolution of species and their distribution. He says: "It will not suffice simply to draw life zones at certain elevations for the first real change due to altitude can be observed only at nearly 5000 feet; and less than one tenth of the Congo bird fauna lives exclusively above that level. The most fundamental distinction in Africa, ecologically, is that between the forest and grass-dwelling faunas." This distinction was emphasized many years ago in North America by the late Spencer Trotter[2] and seems to be true of every part of the world, and Dr. Chapin brings it out most interestingly in his account of conditions in the Congo.

In concluding his discussion of this chapter he says: "Just as aquatic birds can occur only regularly where they find suitable streams or bodies of water, so land birds are largely divisible into forest-loving or forest-shunning, . . . within such ecological divisions there are further variations and finally we see that each species has its peculiar requirements and preferences. These largely determine a bird's range, for birds are free in an unusual degree to choose their own haunts. It is often claimed that environment makes a bird what it is. On the contrary I would argue the bird is a product of heredity; and how environment can influence heredity except through selection is very obscure. . . . The boundaries of our faunal areas are conventional, they attempt to show the main features of distribution, but many species are sure to overstep them. Few sharp lines save coast lines mark the common boundary of a whole section of a fauna." Dr. Chapin endorses the view held by most field ornithologists, and we think the correct one, when he says: "Study of the ranges of subspecies and of related species impresses me with the evident fact that species commonly arise from geographic races."

The problem before the faunal zoologist he very cleverly states as follows:

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[1] American Naturalist, 1923, p. 110.

[2] Birds of the Grasslands. Popular Science Monthly, 1983, p. 453. Cf. also The Auk, 1909, p. 221.

"By means of barriers . . . Nature is confining her live-stock in the various faunal areas, much as the geneticist isolates strains of *Drosophila* in bottles. The faunal zoologist looks into the various areas of his country and compares the results. The modifying influences are not always understood and we can scarcely guess just what went into the experiment at its start. But we have the advantage of observing a large and varied lot of results and measuring their mass effect."

His plea for future procedure in faunal ornithology we cannot too strongly endorse: "Let us study the birds alive," he says, "as well as dead; let us look for evidence instead of making premature decisions."

We might go on indefinitely quoting from this admirable work but space forbids. We congratulate Dr. Chapin not only on the production of an ornithology of the Congo which will be our authority for a long while to come but upon a treatise on distribution, variation, and evolution which will be food for thought both for the field naturalist of the museum and the experimental zoologist of the university laboratory, happily linking, as it does, both aspects of the subject.—W. S.

Hachisuka's 'Birds of the Philippine Islands.'—The second part[1] of volume I of this important work is at hand. This takes up the systematic treatment which had barely been begun in Part I and carries it from the pigeons through the various groups of "water-birds."

Under each species or subspecies are given a statement of distribution in the Philippines, a full description of the several plumages, some general notes on habits, nesting, etc., and a list of allied forms with their respective ranges and the extralimital range, if any, of the Philippine form. The synonymy consists usually of the original reference and a reference to McGregor's 'Manual of Philippine Birds,' occasionally, however, where the author does not recognize a genus that has been employed by another (notably Matthews) he includes the generic reference in the synonymy of the species or subspecies to which it may have been employed, instead of under the generic heading. Another peculiar practise is the use of quotation marks around all abbreviated titles as "Birds Austral." etc.

The work maintains the high standard set in the first part[2] both as to typography and illustrations. The latter consist of many line cuts, taken largely from Matthews' 'Birds of Australia,' and fifteen plates, many of them colored, from paintings.

Mr. Hachisuka's work bids fair to be for some time to come our authoritative treatment of the Philippine avifauna. We note that the addition of text and illustrations beyond that at first contemplated will extend the work to more than the five parts originally planned.—W. S.

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[1] The Birds | of the | Philippine Islands | with Notes on the Mammal Fauna. | By | The Hon. Masauji Hachisuka (etc.). | Part II. Pages 169–439 (vignette). H. F. & G. Witherby, 326 High Holborn, London, W. C. 1. 14th September, 1932. Price

[2] See Auk, 1931, p. for review of Part I.

Stuart Baker's 'Nidification of Birds of the Indian Empire.'[1]—Although the author has presented much important information on the nesting of Indian birds in the bird volumes of the 'Fauna of British India' he has in the present work greatly elaborated this branch of the subject, the one in which he has always been especially interested.

While the nests and eggs are described with satisfactory detail there is also a full account of the habitat of the bird as well as its distribution and not infrequently something on its habits, while the works and observations of others are quoted where they supplement the author's own wide experience. The work therefore constitutes not only an indispensable book for the oölogist but an important reference volume for the general ornithologist.

In an interesting and instructive introduction Mr. Baker traces the history of oölogy in India for the past hundred years, from the work of Hume, Oates, Hodgson, etc., to the present day, and also presents a justification of the science and a reply to those who claim (to use his own words) "that all egg collecting is not only cruel but absolutely useless, that it can never be a science, and that all egg collectors should be sentenced to penal servitude for life in a birdless, eggless, country!" The author's present volume is, we think, the best refutation of such claims although we agree with him in endorsing Dr. Hartert's statement that "oölogists may be counted on the fingers of two hands but egg collectors are beyond numbering," and in decrying the taking of eggs merely because of their beauty. That we need more oölogists, in the strict interpretation of the term, goes without saying.

In this well gotten-up volume the author covers the crows, tits, nuthatches, babbling thrushes, bulbuls, creepers, wrens and dippers. Several excellent photographs of nests *in situ* serve for illustrations. We congratulate him upon another valuable contribution to Indian ornithology and shall look forward with interest to the succeeding parts.—W. S.

Ticehurst's 'History of the Birds of Suffolk.'—In a beautifully printed volume[2] of some 500 pages Dr. Ticehurst presents the ornithological history of the British county of Suffolk which lies in southeastern England on the North Sea. It is nearly half a century since the appearance of Babington's 'Catalogue of the Birds of Suffolk' so that it was high time for the publication of the present, far more pretentious, work. The author has been collecting information for upwards of twenty years and the book is the result of his personal observations combined with those of his many correspondents. A standard English name heads each account, with the

[1] The Nidification | of | Birds of the Indian Empire | By E. C. Stuart Baker, [etc.] | Vol. I | Corvidae–Cinclidae. | With eight plates | London: Taylor and Francis, Red Lion Court, Fleet Street, E. C. 4. 30th November, 1932. Pp. i–xiii + 1–470. Price 30 shillings.

[2] A History of the | Birds of Suffolk | By Claud B. Ticehurst [etc.] | Illustrated | Gurney and Jackson | London: 33 Paternoster Row, E. C. | Edinburgh: Tweeddale Court | 1932. Pp. i–xi + 1–502, with map. Price 24 shillings net.

technical and additional vernacular names below. The illustrations are attractive photographs of characteristic bits of scenery.

There is something particularly attractive about intensive studies of a limited area especially when, as in the present case, the matter has been carefully digested and written up in a scholarly manner. To local ornithologists and to those comparing the bird life of different parts of England such a work as this must be most welcome and even an American bird lover far removed from the local environment will find it delightful reading.

Our American states are usually too large and diversified for such treatment and the task of writing a comprehensive state bird book is both difficult and unsatisfactory, especially if, as it would appear, it is necessary to include colored plates of all the species, involving frequent duplication. We wonder if there be not a demand in this country for well compiled and written histories of the birds of smaller areas comparable to the British Counties, in which literary style rather than colored plates may be the chief objective.

We congratulate Dr. Ticehurst upon an excellent piece of work.—W. S.

Menegaux's 'Birds of France.'—As volume 26 of the 'Naturalist's Practical Encyclopedia'[1] Dr. Menegaux has published the first volume of a popular work on the birds of France, covering the birds of prey, gallinaceous birds, pigeons, woodpeckers and cuckoos.

The introductory pages deal with the anatomy of birds, bird-banding, collections and the preparation of specimens, as well as a list of bird parasites and a key for the determination of the species. The latter half of the little volume consists of descriptions of the various birds with brief accounts of their distribution and life history with vernacular names in several languages. There are many excellent line drawings, illustrating the introduction, and sixty-four colored plates of the species considered, which serve very well for purposes of identification.

The book, which is of pocket size, will be most welcome to local students and to visitors who desire a knowledge of the birds of continental Europe and who may desire to improve both their French and their ornithological knowledge. It is to be regretted that the entire work could not have been published in a single volume. Dr. Menegaux's name is a guarantee of the accuracy of the information conveyed.—W. S.

Anderson on Methods of Collecting and Preserving Specimens.—There have been various instructions published for the preparation of museum specimens but this bulletin by Dr. Anderson, published by the National Museum of Canada,[2] seems to be the best, including as it does a

[1] Encyclopedie Pratique du Naturaliste XXVI, Les Oiseaux de France par A. Menegaux. Vol. I. Introduction a l'Etude de L'Ornithologie Rapaces, Gallinaces Colombins, Piciformes. Paul Lechevalier & Fils, 12 Rue de Touron, Paris. 1932. Pp. 1–93. Price 50 Francs.

[2] Methods of Collecting and Preserving Vertebrate Animals. By R. M. Anderson. Bulletin 69, Biological Series No. 13, National Museum of Canada. Ottawa, 1932. Pp. i–v + 1–141. Price 25 cents.

study of the methods employed by others as well as those of the author. Methods of collecting, trapping, skinning, and labelling are considered at length as well as the handling of greasy specimens and the making over of old material. Numerous illustrations explain the various processes.

We can heartily recommend Dr. Anderson's bulletin not only for the benefit to the individual collector but also for the resultant improvement in our museum collections. There is no excuse in these days for the carelessly made specimens which have hindered research in the past and made our museum collections unsightly. Dr. Anderson has rendered a service to all in compiling these instructions.—W. S.

Stead's 'Life Histories of New Zealand Birds.'—Some three years ago we had the pleasure of noticing Mr. W. P. B. Oliver's excellent work on 'New Zealand Birds,' a standard handbook on the avifauna of the islands. Now we have before us a companion work[1] dealing at greater length with the life histories of a limited number of the characteristic species. The author, Mr. Edgar F. Stead, has spent his life in the study of New Zealand's native birds, travelling widely over the country with note book and camera, and the present attractive volume sets forth some of the results of his labors.

He presents histories of three species of cormorants, five gulls and terns, a petrel, three shore birds, a hawk, owl, and kingfisher, and three "song birds": the Fantail, Blightbird and Bell-bird. These life-histories are extremely interesting and well written while the illustrations are admirable examples of the best work of the bird photographer, highly artistic and well reproduced. Anyone interested in bird life will find Mr. Stead's pages well worthy of his attention, and will gain an excellent idea of the coastal avifauna of this remote country. We trust that the author may be able to follow this work with an account of the life-histories of more of the land birds some of which, at least, are becoming very rare.

Mr. Stead tells us that "the destruction of the bush for timber or to make the land available for farming, removed the birds' shelter and their food supply and necessarily the birds went too." Even where isolated patches of bush are left they will be thronged with the introduced birds—blackbirds, thrushes and starlings which consume the native berries and when the crop of berries fails they can subsist on earth worms but this the native "bush birds" cannot do and they therefore perish.

Another serious detriment to bird life is the supply of cats which have run wild. "These marauding brutes" says our author, "protected by the Government because they take an occasional young rabbit, kill birds in great numbers." The rabbit is of course a great nuisance in New Zealand and is an example of the mistake of introducing exotic animals into any country, while the introduced British birds may, from the ornithologist's

[1] The | Life Histories of | New Zealand Birds | By | Edgar F. Stead | London | The Search Publishing Co., Ltd. | 6 Old Gloucester Street, W. C. 1 | 1932. Pp. i–xlv + 1–162. Pll. I–XCII. Price 30 shillings net.

point of view, soon constitute another! Mr. Stead, referring to the cats, quotes the old rhyme

> "Ding, dong dell, Pussy's in the well,
> Who put her in? Little Tommy Thin." etc.

and suggests that following London's statue to the memory of Hudson for his interest in birds, New Zealand might erect a monument to Little Tommy Thin!

We congratulate Mr. Stead upon a valuable contribution to bird biography and also his publishers who have spared no pains to make a most attractive book.—W. S.

Taka-tsukasa's 'The Birds of Nippon.'—Prince Taka-tsukasa, president of the Ornithological Society of Japan has begun the publication of a sumptuous work[1] wholly in English on the birds of the Japanese Empire of which the first part is before us. The work is limited by political, not faunal boundaries, and includes Sakalin Island, Korea (Chosen), and the Pacific islands under Japanese mandate, etc., as well as Japan proper. After a brief introduction explaining the scope and plan of the work and calling attention to the fact that of the three works on the birds of Japan, those of Temminck and Schlegel and Seebohm are out of print, while that of Uchida is written in Japanese, the author proceeds at once to a consideration of the Gallinaceous birds of which two species of megapodes and two pheasants are covered in the present part.

The accounts of plumage, relationship, variation, and life history are very full and satisfactory and the illustrations numerous and excellent. Each species is depicted in colors and there are artistic photographic views of haunts reproduced in photogravure. The work is excellently printed on heavy paper and makes a fine appearance.

Prince Taka-tsukasa's book bids fair to be our authoritative work on the Japaneses avifauna and we wish him success with his great undertaking.—W. S.

LaTouche's 'Birds of Eastern China.'—The latest part of this important "Handbook"[2] appeared in December last and covers the remainder of the birds of prey, the pigeons, sand grouse, pheasants, quail and rails.

To those who, like the reviewer, have been making constant use of Mr. LaTouche's excellent work the appearance of each additional part is welcomed as an indispensible aid to work on the birds of China, and his plan of including summaries of the races of widely spread species, from the

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[1] The Birds of Nippon. By Prince Taka-tsukasa. Vol. I, Part 1. Introduction and Order Galli. H. F. and G. Witherby, 326 High Holborn, London, W. C. I. Yokendo, 7 Motozono-Cho, Kojimachi-ku. Tokyo. August 15, 1932. Pp. 1–70, Pll. I–VIII.

[2] A Handbook of the Birds of Eastern China. By J. D. D. LaTouche. Vol. II, Part III. Taylor and Francis, Red Lion Court, Fleet Street, London, E. C. 4. Pp. 193–288, pll. XVIII and XIX. Price 7s. 6d. per part.

interior provinces, gives an added value to the publication. The present part is quite up to its predecessors in thoroughness and appearance.—W. S.

Gorbunow's 'Birds of Franz-Joseph Land.'—This work[1] is a detailed account of the bird life of Franz Joesph Land based on trips made by the author in 1927 and 1930 on Russian "ice-breaker" boats, and on collections made by previous Russian voyagers, as well as on the literature which he has studied exhaustively. Twenty-six species are found on the island of which all are water birds except the Lapland Longspur, Snow Bunting, Horned Lark, Swallow, Snowy Owl, Gyrfalcon and Ptarmigan. We note that the Eider Duck is the northern race *S. m. borealis*. Some of the species like Bonaparte's Sandpiper have occurred only once or twice and only the true arctic birds breed there. This important work is printed in Russian but there is a much condensed German translation appended.—W. S.

Pearson and Brooks on Crows and Jays.—Continuing its excellent accounts of the birds of North America the 'National Geographic Magazine,' in its January issue, presents an account[2] of the crows, jays and their allies, by Dr. T. Gilbert Pearson, with attractive illustrations in color from paintings by the well known bird artist, Major Allan Brooks. There are sixteen of these representing the raven, crow, the two magpies, eleven species of jays and the nutcracker. The various subspecies into which these birds have been divided are mentioned by name with an outline of their distribution.

There are good accounts of the habits, history, and food of the birds and a popular introductory sketch of the group with anecdotes and many halftone illustrations. Students of our birds should secure the magazines containing these valuable papers which will eventually form a well illustrated and reliable history of the birds of North America.—W. S.

Palmgren's Recent Publications on Animal Ecology.—Mr. Pontus Palmgren has recently published a number of important contributions to animal ecology and related subjects which we, unfortunately, have not space to adequately review but we recommend them to the attention of all interested in this line of investigation. All are written in German.

One[3] deals with the principles of plant and animal ecological investigation while in another[4] he describes at length a quantitative investigation of the bird life of the woodland of southern Finland which is approached from

[1] The Birds of Franz-Joseph Land. By G. Gorbunow, Transactions of the Arctic Institute, USSR. Vol. IV. Leningrad, 1932. Pp. 1–244.

[2] Crows, Magpies and Jays. By T. Gilbert Pearson. Nat. Geographic Mag., January 1933. Pp. 50–79.

[3] Zur Synthese Pflanzen- und Tierokologischer Untersuchungen. von Pontus Palmgren, Acta Zool. Fennica 6 Helsingforsiae 1928. Pp. 1–51.

[4] Quantitative Untersuchungen uber Die Vogelfauna in den Waldern Sudfinnlands. von Pontus Palmgren. Acta Zool. Fennica 7 Helsingsforsiae 1930. Pp. 1–218.

various angles with many tables and charts and excellent photographic reproductions of typical habitats. This investigation is opened with a fitting quotation from Charles Elton: "The study of animal numbers will form in future at least half the subject of ecology."

Another paper[1] deals with the biology of the European Golden-crowned Kinglet and Chickadee as a comparative ecological study, discussing nest structure, with identification of all materials used in construction, and detailed consideration of food, with careful analyses. There is also an investigation of the musculature of the legs of the two species in connection with their use in grasping branches when feeding, etc. Excellent photographs of series of nests illustrate this paper.

Another contribution[2] discusses *Parus cristatus* on Aland, from an ecological standpoint.—W. S.

Groebbels' 'Der Vogel.'[3]—This magnificent volume, the first of three dealing with the bird as a biological organism, especially from the viewpoints of structure, function, habit, and adaptation, is one of the really notable bird books of recent years. It not only summarizes and brings together for the first time a stupenduous mass of facts, but also achieves a synthesis of these data that is a remarkable tribute to the learning, breadth of vision, and depth of insight of its author. More than anything yet written it shows that the progressive ornithologist of the present and the future will have to be a physiologist and an anatomist as well as a field naturalist. The present volume deals with two main topics,—respiration and nutrition, the other subjects being reserved for the projected subsequent volumes. Some idea of the comprehensive nature of the work may be gained from the following figures, respiration requires 240 pages for its exposition, while nutrition occupies some 600 pages. Not only are all the data clearly and concisely presented with well chosen illustrations but the literature of each is conveniently cited, so that the book immediately becomes an invaluable guide to the literature of the topics it covers. All in all 2863 bibliographic references are given (744 on respiration and 2119 on nutrition).

A book of this sort is not to be read from cover to cover, but is to be referred to as to an encyclopedia. In skimming through it the reviewer was struck with the author's familiarity with the literature of the birds of the world; there is nothing that savours of local limits in its material; American, Japanese, and Australian literature are nearly as exhaustively ransacked as is the European. For the benefit of readers interested in particular

[1] Zur Biologie von Regulus r. regulus (L) und Parus atricapillus borealis Selys Eine Vergleichend-okologische Untersuchung. von Pontus Palmgren, Acta Zool. Fennica 14, Helsingforsiae 1932. Ppl. 1–113.

[2] Die Haubenmeise (Parus cristatus L.) auf Aland. von Pontus Palmgren. Acta Soc. pro Fauna et Flora Fennica, 56, No. 15. Helsingfors 1927. Pp. 1–12.

[3] Groebbels, Franz. Der Vogel. Bau, Funktion, Lebenserscheinung, Einpassung. Erster Band: Atmungswelt und Nahrungswelt. Pp. i–xii + 1–918, 2 pls., 234 text figs. Berlin, Gebrüder Borntraeger, 1932. Price 72 Reichsmarks.

species of birds there is a systematic index to the references in the text. Thus, a person working on coots may readily find what is said on different pages concerning the respiration and nutrition of these birds, etc.

This volume fills a great gap in the working equipment of the serious ornithologist and will be of the utmost value for years to come. The author has placed all bird students deeply in his debt. Ornithology has reached a stage where the superficial data of systematics, plumages, ranges, etc., of species are fairly well known. The need is now for an understanding of these facts and for this purpose the trend of investigation must take on a physiological complexion. No amount of quasi-historical data will ever enable us to explain things; we must study the functionings of present bird species rather than speculate about the theoretical workings of "nature," "environment," etc. As a guide and a pioneering stimulus to the new ornithology Groebbels's book is a beacon of the first magnitude.—H. F.

Heinrich's Expedition to Celebes and Halmahera.[1]—For nearly two years, 1930–1932, Gerd Heinrich, accompanied by his wife and sister-in-law, was collecting birds in Celebes and Halmahera for Dr. L. C. Sanford of the American Museum of Natural History. The two principal objects of his search were the extremely little known rails, *Aramidopsis plateni* of Celebes and *Habroptila wallacei* of Halmahera, although a number of other species were also particular desiderata. The Celebesian rail had been lost sight of for more than thirty years and no specimens were in existence in the collection at New York. The author calls *Aramidopsis* the "Bird Snorer" and his expedition a search for this elusive creature. He begins by describing Dr. Sanford telling him that of all the birds in Celebes this is the one he must not fail to get, and closes his book by saying, "Doctor Sanford, I've got your bird." The body of the book is taken up with an account of the expedition, illustrated with numerous excellent photographs of the country, the birds, and several of the author and his two companion-assistants in post-Victorian costume. A drawing of *Aramidopsis* and a photograph of a skin of this bird and of *Habroptila* complete the volume.—H. F.

Siewert on the White and Black Storks of Europe.[2]—In this attractively printed and superbly illustrated book the author presents elaborately detailed life histories of the two common storks of Europe, the Black Stork (*Ciconia nigra*) and the White Stork (*Ciconia ciconia*). The former species takes up the first 113 pages; the latter, the remaining 95 pages. The plates, made from the author's photographs, are the outstanding feature of the book and form a wonderful collection. Perhaps the most unusual and instructive from the point of view of the serious student

[1] Gerd Heinrich. Der Vogel Schnarch. Rallenfang und Urtwaldforschung in Celebes. Dietrich Reimer, Berlin, 1932. Pp. 1–196, 63 pls. Price 4 marks 80.

[2] Horst Siewert. Störche. Erlebnisse mit dem Schwarzen und Weissen Storch. Dietrich Reimer, Berlin, 1932. Pp. 208, 80 pls. Price 4 marks 80 pfennig.

of birds are two of the White Stork (pp. 136 and 145) showing the head thrown over on the back and the gular sac somewhat distended, during the production of the loud clapping notes. A number of other intimate illustrations reveal the author's fidelity to detail and his skill and perseverance as a photographer. The natural history data in the text are of a high order of merit, and are worthy of serious attention.—H. F.

Other Publications.

Bailey, Alfred M. and Niedrach, Robert J. The Mountain Plovers of the Prairie. (*Natural History*, Jan.–Feb., 1933. Published by the Amer. Mus. Nat. Hist., N. Y. City.)—A beautifully illustrated account of this species in Colorado.

Bangs, Outram and Loverage, Arthur. Reports on the Scientific Results of an Expedition to the Southwestern Highlands of Tanganyika Territory. (*Bull. Mus. Comp. Zoöl.* LXXV, No. 3, Feb. 1933.)—Notes on 246 species with accounts of breeding, distribution, food, parasites, etc. The six forms new to science were described previously.

Bangs, Outram and Griscom, Ludlow. New or Little Known Birds from Costa Rica. (*Proc. N. E. Zoöl. Club*, Vol. XIII, pp. 47–53, Nov. 7, 1932.)

Bird, Aldine R. The Ivory-bill is Still King. (*American Forests*, December, 1932.)—An account of the discovery of at least three of these birds in Madison Parish, Louisiana, in the spring of 1932, which were seen by Ernest G. Holt and Dr. T. Gilbert Pearson. Another male had been shot previously and sent to the State Department of Conservation.

Boulton, Rudyerd. A New Species of Tree Partridge from Szechuan, China. (*Proc. Biol. Soc. Washington*, Vol. 45, pp. 235–236, Dec. 23, 1932.) —*Arborophila rufipectus* (p. 235) Ta Cho Fu.

Charleston Museum Seasonal List of South Carolina Birds. (*Museum Leaflet* No. 3.)—353 species arranged according to character of occurrence.

Delacour, J. General Directions for the Keeping and Breeding of Birds [In French]. (*L'Oiseau*, 1933, No. 1).

Friedmann, Herbert. A Collection of Birds from Great Namaqualand, S. W. Africa. (*Proc. U. S. Nat. Mus.*, Vol. 82, Art. 10, 1933).—Notes on 24 species.

Griscom, Ludlow. New Birds from Honduras and Mexico. (*Proc. N. E. Zoöl. Club*, Vol. XIII, pp. 55–62, Nov. 7, 1932.)—Races of *Cyrtonyx*, *Trogon*, *Lamprolaima*, *Lampornis*, *Atthis*, *Tilmatura*, *Empidonax*, *Henicorhina*, *Diglossa*, *Spinus*, and *Icterus*.

Hix, George E. The Birds of Prey for Boy Scouts. (Price 25 cts. from the author, 337 72nd. St., Brooklyn, N. Y.)—An excellent pamphlet not only for Boy Scouts but for all others desiring to become acquainted with our hawks and owls. Especially important as an offset to the unfortunate attitude of most of the schools of forestry training in which these

birds are regarded as "vermin" and their destruction urged upon the young pupils.

Kendeigh, S. Charles. Abundance and Conservation of the Bobwhite in Ohio. (*Ohio Jour. Sci.*, Vol. XXXIII, No. 1, Jan., 1933.)—The author's conclusion is that the bird is not sufficiently abundant to permit a general open season and if its shooting be permitted at all it should be only in certain districts where it can stand the drain. Ohio is to be congratulated for placing the Bobwhite on the protected list and it would seem unfortunate to allow it to be shot anywhere. States that have not absolutely protected it have to import birds from Mexico, the original stock having largely disappeared.

Maslowski, K. The Saw-whet Owl [in the vicinity of Cincinnati]. (*Proc. Junior Soc. Nat. Sci.*, Vol. 3, No. 2.—to be had from 312 Broadway St. Cincinnati.)

Miller, Alden H. Postjuvenal Molt and the Appearance of Sexual Characters of Plumage in *Phainopepla nitens*. (*Univ. Calif. Publ. Zool.*, Vol. 38, No. 13, Jan., 1933.)—The variation in completeness of this molt is greater in this species than in the majotiry of North American birds; date of hatching and presence of migration are possible factors. Incomplete pigmentation and incomplete molt are probably the results of different physiological conditions and are not always associated. The hormone-producing tissue of the testis seems to be variably developed at the time of this molt and may account for the variation in the development of black pigment.

Moore, Robert T. A New Race of *Aimophila carpalis* from Mexico. (*Proc. Biol. Soc. Washington*, Vol. 45, pp. 231–234, Dec. 23, 1932.)—*A. c. bangsi* (p. 232) Guirocoba, Sonora, Mex.

Mousley, Henry. A Study of the Home Life of the Northern Yellowthroat. (*Canadian Field Nat.*, Jan. 1933.)

Mousley, Henry. A Third Study of the Home Life of the Eastern Goldfinch. (*Canadian Field Nat.*, Dec., 1932.)

Peters, James Lee. Two New Genera and a New Subspecies of Rails. (*Proc. New Eng. Zoöl. Club*, XIII, pp. 63–67, Dec. 19, 1932.)—*Aenigmatolimnas* (p. 64) for *Porzana marginalis* Hartlaub; *Mentocrex* (p. 65) for *Gallinula kioloides* Pucheran and *Porzana albicollis typhoeca* (p. 66) Santa Marta, Colombia.

Randall, T. E. A List of the Breeding Birds of the Athabasca District, Alta. (*Canadian Field Nat.*, Jan., 1933.)

Riley, J. H. A New Swift of the Genus *Reinarda* from Venezuela. (*Proc. Biol. Soc. Washington*, Vol. 46, pp. 39–40, Feb. 20, 1933.)—*R. squamata semota* (p. 39) El Mango, Brazo, Venezuela.

Rowan, William. Experiments in Bird Migration. (*Proc. Nat. Acad. Sci.*, Vol. 18, No. 11, Nov. 1932.)—Deals with the effects of artificial light, castration, and certain extracts on the autumn movements of the American Crow.

Speris, J. Murray. Some Notes on the Henslow Sparrow. (*Canadian Field Nat.*, Feb., 1933.)—At Lowbanks, Ontario.

Taverner, P. A. A Partial Study of the Canadian Savanna Sparrows. (*Proc. Biol. Soc. Washington*, Vol. 45, pp. 201–206, Nov. 10, 1932.)—The form from middle western Canada, is described as *Passerculus sandwichensis campestris* (p. 204) Red Deer, Alta. the name *alaudinus* being restricted to the bird of interior British Columbia.

Todd, W. E. Clyde. A New Name for *Odontophorus capistratus* Todd. (*Proc. Biol. Soc. Washington*, Vol. 45, pp. 237, Dec. 23, 1932.)—*O. loricatus.*

Van Oort, E. D. Results of Bird Banding at the Museum of Natural History at Leiden. (*Zool. Mededeel Rijks Mus. Nat. Hist.*, Leiden, Deel. XV, Afl. 1–2, 1932.) [In Dutch.]

Van Tyne, Josselyn. Some Birds of the Rio Grande Delta of Texas. (*Occas. Papers Mus. Zool. Univ. Mich.*, No. 255, Feb. 10, 1933.)—*Geothlypis trichas insperata* (p. 3) is described as new from the Rio Grande delta, below Brownsville.

Van Tyne, Josselyn. A New Solitary Vireo from British Honduras. (*Occas. Papers Mus. Zool. Univ. Mich.*, No. 256, Feb. 10, 1933.)—*V. solitarius notius* (p. 2).

Zimmer, John T. Studies of Peruvian Birds. VII. (*Amer. Mus. Novitates*, No. 558, Sept. 14, 1932.)—New forms in the genera *Pygiptila, Megastictus, Dysithamnus, Thamnomanes, Cercomacra*, and *Phlegopsis* are described.

Zimmer, John T. Studies of Peruvian Birds. VIII. (*Amer. Mus. Novitates*, No. 584, Nov. 15, 1932.)—Describes new forms of *Cymbilaimus, Thamnistes, Terenura, Percnostola, Formicarius, Chamaeza* and *Rhegmatorhina.*

Zimmer, John T. The Central American Forms of the Musician Wren *Cyphorhinus lawrencii* Lawrence. (*Amer. Mus. Novitates*, No. 573, 1932).—*C. l. infuscatus* (p. 3) described as new from Carrillo, Costa Rica.

Dery, D. A. Preliminary Report on the Migration of the Northern Sharp-tailed Grouse in Quebec. (*Bull. I, Quebec Zoological Society*, March, 1933.)—An account of the reappearance of *Pedioecetes p. phasianellus*, in certain districts of Quebec after an absence of 38 years and a discussion of its food etc., as having a bearing on its migration.

Richardson, Hubert. Further Notes on the Henslow's Sparrow at Toronto. (*Canadian Field Nat.*, March, 1933.)—Canadian Christmas Bird Censuses. (*Canadian Field Nat.*, March, 1933.)

The Ornithological Journals.

Bird-Lore. XXXV, No. 1. January–February, 1933.

The Bohemian Waxwing. By W. H. Bergtold.—An account of its irregular winter appearances in Colorado.

Bird Tradegies. By Paul G. Howes.

The Christmas Census occupies a large part of the issue and Cape May, N. J., reported on by the Delaware Valley Ornithological Club leads the

eastern states with 94 species exceeded however, by the Santa Barbara, Calif., list of 129. Dr. A. A. Allen contributes a well illustrated biography—this time on the Peregrine or Duck Hawk. Some have complained that he seems to unduly stress its ferocity but he does not lack the appreciation of its beauty as voiced by such writers as G. M. Sutton (Auk, 1929, pp. 192–193) and makes a strong plea for its preservation. Would that our human Peregrines would heed it!

The Condor. XXXV, No. 1. January–February, 1933.

Range Restriction of the Long-billed Curlew. By John W. Sugden.—Excellent illustrations and accounts of the breeding habits of the bird near Salt Lake City.

Closing History of the Guadelupe Caracara. By Clinton G. Abbott.—Thirty-four extant specimens are listed with extracts from letters from the few men who have seen this apparently extinct bird in life.

Bird Remains from Cave Deposits in New Mexico. By Hildegarde Howard and Alden H. Miller.—Fifty-eight species listed from two caves at Pyramid Peak.

Food Habits of Southern Wisconsin Raptors. By Paul L. Errington.—In this excellent paper the author discusses not only what the birds actually eat but the food that was available in their range. The value of the Buteos is confirmed and the damage to game by other species shown to be less than usually supposed by prejudiced game breeders.

The Wilson Bulletin. XLIV, No. 4. December, 1932.

The Physiology of Feather Pattern. By Frank R. Lillie.—Experiments on the effect of injection of thyroxine and of female hormone on feather pattern in brown Leghorn fowls. The editor comments on Dr. Lillie's paper: "Our field students will be interested in this glimpse at the experimental aspect of the biology of birds. Anatomy and classification have had their day; most systematists of today are driven to the work of making subspecies—the biological significance of which is doubtful." But we are inclined to think that ornithologists at large will not agree with the statement that "anatomy and classification have had their day," let the editor refer to Dr. Lowe's various articles in 'The Ibis' on the classification and structure of the Charadriiformes!

Studies of the Behaviour of the Great Horned Owl. By Paul L. Errington.—So many papers have dealt with this subject that a bibliography of the more important ones would have been desirable as well as a comparison of experiences.

The Snowy Owl Invasion of Ohio in 1930–31. By Lawrence E. Hicks.—With an excelllent bibliography.

The Cormorants of South Dakota. By Arthur Lundquist.—Well illustrated.

The Oölogist. XLIX, No. 12. December, 1932.

Birds of South Africa—Three Fruit Thieves. By A. Trevenning Harris.—Popular account of the Speckled Coly, Red-winged Starling, Pied and Cape Starlings and the Black-capped Bulbul.

The Dovekie in Florida. H. H. Bailey.—Many specimens, November 19, 1932.

The Oölogist. XLX, No. 1. January, 1933.

In Memoriam, The Pileated Woodpecker. By J. Warren Jacobs.—In southwestern Pennsylvania.

The Oölogist. XLX, No. 2. February, 1933.

Sandhill Cranes Nesting in the Muskegs. By A. D. Henderson.—At Fort Assinoboine.

The Foster Tern. By A. Trevenning Harris.—In western Nebraska.

Bird-Banding. IV, No. 1. January, 1933.

Mobility of the Northern Bob-white as Indicated by Banding Returns. By Paul L. Errington.—Coveys reasonably stationary during a winter but individuals may be two miles away the next season.

Testis Activity in *Sturnus vulgaris* in Relation to Artificial Sunlight and Electric Lights. By T. H. Bissonnette and A. P. R. Wadlund.—An incandesent lamp with luminous intensity equal to a "sun-lamp "was more effective than the latter. The possibility of the specificity of a very restricted region of the visible spectrum, somewhere in the red, for sexual activating powers, and the ineffectiveness of wave-lengths from other regions are discussed.

Distribution of Returns from Banded Ducks. By F. C. Lincoln.—With many maps and detailed discussion.

Experiments with the Terragraph on the Activities of Nesting Birds. By Josef Bussmann.—An electro-magnetic instrument by which the activities are recorded.

Size and Measurement of Territory in Birds. By Herbert Friedmann.—A most suggestive article in which are considered the "various combinations of factors, other than food (which is obvious) that have a resulting influence on the size of the territory, and how to distinguish between them.

Banding Wilson's Petrels. By Samuel A. Elliot, Jr.—A simultaneous publication at greater length, of a note in the January 'Auk'!

The Cardinal. III, No. 5. January, 1933.

Birds of the West Virginia Panhandle. By George M. Sutton.—An annotated list of some 187 species. It is interesting to learn that the Black-capped and Carolina Chickadees breed in the same area. We have always looked for this in eastern Pennsylvania and northern New Jersey but apparently the ranges there, while approaching closley, do not overlap.

The Migrant. III, No. 4. December, 1932.

Notes on a Captive Golden Eagle. By H. C. Sanborn.—Caught near Chattanooga, Tenn.

The Pileated Woodpecker. By Vernon Sharpe, Jr.

There is a Nashville Christmas Census for the years 1914 to 1931 (except 1920); the total number of species for all combined being 88.

Also various Tennessee Notes.

The Gull. XIV, No. 12, and XV, Nos. 1 and 3. December, 1932, and January and March, 1933.

A sketch of the late Dr. B. W. Evermann is presented in No. 12 and Christmas lists for the vicinity of San Francisco in No. 1–58 and 47 species.

Aviculture. (series II) IV, No. 9. November, 1932.

The Thick-billed Parrot. (*Rhynchopsitta pachyrhyncha*). By Karl Plath.—With a photograph from life.

There is an account of a visit to Tahiti by Henry Silverthorne and much important matter on aviculture.

Aviculture. (series II) IV, No. 12. December, 1932.

The Venezuelan Cardinal. By Karl Plath.—With a color plate from a painting by the author.

Breeding of hybrid macaws (*Ara macao* × *ararauna*) in captivity. By E. H. Lewis.—This cross is called "*A. catalinisis.*"

Iowa Bird Life. II, No. 4. December, 1932.

Nesting Studies of Iowa Game Birds. By Paul L. Errington.

The American Egret in Iowa in 1932. By Philip A. DuMont.

Many notes etc., on Iowa birds.

The Nebraska Bird Review. I, No. 1, January, 1933.

Observations on the Number of Birds to the Square Mile in Custer Co. By J. M. Bates.—An interesting count and estimate.

Many important Nebraska notes and records.

With this issue the Nebraska Ornithologists' Union, which for the years 1916–1924 published its notes in the 'Wilson Bulletin,' resumes an independent publication such as it carried on from 1900 to 1915. The new journal is a creditable publication and will appear quarterly.

The Raven. III, No. 12, and IV, Nos. 1 and 2. December, 1932–February, 1933.

This mimeographed journal presents many notes on the birds of Virginia and the activities of the Virginia Society of Ornithology, with which all Virginia birds students should be identified.

The Flicker. IV, No. 4, 1932, and V, No. 1. February, 1933. (Mimeographed Journal).

Presents local notes on Minnesota birds.

Saint Louis Bird Club Bulletin. I, No. 4. December 14, 1932. (Mimeographed Journal.)

Reports bird notes from St. Louis, Mo., and the activities of the club. Some interesting data on bird weights are presented.

Notes from the Bird Banders. VIII, No. 1. January, 1933. (Mimeographed Journal.)

A well prepared review of Schuz and Weigold's 'Atlas of Migration of Palaearctic Birds.' Also articles on banding gulls, murres, etc., in Oregon and on various phases of bird banding.

The Ibis. (13 series) III, No. 1. January, 1933.

Taxonomic and Field Notes on some Birds of Northeastern Tanganyika Territory. By W. L. Sclater and R. E. Moreau. Part III.—Muscicapidae, Turdidae and Sylviidae.

Notes on Some Birds of Egypt. By S. S. Flower.

Some Remarks on the Systematic Status of the Yellow-legged Herring Gulls. By Einar Lönnberg.—Finds some Herring Gulls on the Baltic coast of Sweden with yellow or yellowish feet. Also shows that the bill and feet of the normal Herring Gull contains at least some carotin (xanthophyll) and concludes that the birds may show more or less yellow in the feet at the approach of the nesting season, and that the Baltic individuals were of this nature and not a different race.

Notes on some Birds of the Bauchi Plateau. Part II. By J. Dent Young.

Eastern Forms of *Sturnus vulgaris*. By the late P. P. Sushkin.

The birds of South-west Transbaikalia, northern Mongolia and central Gobi. Pt. IV. By E. V. Kozlova.—An important paper on a little known region; with excellent photographs of the country.

Additions and Corrections to the 'Systema Avium Australasianarum.' Part III, By G. M. Mathews.

Some Notes on the Birds of Portugal. By C. B. Ticehurst.

Structural Diversity in Charadriine Genera correlated with Differences in Colour-pattern. By P. R. Lowe.—Shows that the Black-bellied and Golden Plovers with very similar coloration have strikingly different structural characters and that the smaller plovers may be separated into two series one of paler coloration and the other darker, the skulls in the two groups differing markedly. He regards the former as more primitive. We note that our Piping Plover is placed in the latter group although from its plumage it would seem to belong to the first! Curiously enough our Semipalmated Plover is not mentioned, being apparently one of those of which material was lacking.

Bulletin of the British Ornithologists' Club. No. CCCLXIV. December 31, 1932.

Contains the annual address of the Chairman, Mr. D. A. Bannerman, reviewing the ornithological work of the year 1932.

Mr. Bannerman proposes *Tetragonopyga* (p. 72) as a new genus for *Cypselus affinis* Gray; G. L. Bates describes *Auripasser luteus tilemsiensis* (p. 720) French Sudan; *Tchagra senegala timbuktana* (p. 74) Timbuktu and *Mesopicus goertae agmen* (p. 74) Upper Volta, and *Charadrius marginatus nigirius* (p. 76) for *C. m. russatus;* Mr. N. B. Kinnear proposes: *Actinodura nipalensis wardi* (p. 79) and *Grammatoptila striata cranbrooki* (p. 79) from N. E. Burma.

Bulletin of the British Ornithologists' Club. No. CCCLXV, January 31, 1933.

Mr. J. Delacour discusses the genus *Liocichla* to which he refers the bird known as *Trochalopteron phoeniceum.*

A Cuckoo picked up dead on the island of Scilly and identified as the American Yellow-billed Cuckoo proves to be the Black-billed.

Three new races of *Penelope superciliaris* are described by Oscar Neumann.

Bulletin of the British Ornithologists' Club. CCCLXVI. February 22, 1933.

B. G. Harrison presents a paper on 'Factors governing the Development of Parasitic Habits in Passerine Birds' and deals especially with the American Cowbirds.

T. H. Harrisson gives an account of his work in central Borneo.

The Red-footed Booby breeding on Little Cayman and Western Samoa and occurring on Madagascar, etc., is named *Sula nicolli* by Grant and Mackworth-Praed, the type from Gloriosa Island, Indian Ocean.

Dr. Finn Solomonsen discusses the Madagascar Paradise Flycatchers, and proposes for the western Madagascar race *Tchitrea mutata singetra* (p. 124). In the rather involved discussion of mutants, etc., however, we fail to find any description of this race and as the mention of a type locality and a type specimen hardly constitutes a diagnosis, it appears that the name is a nomen nudum.

D. A. Bannerman proposes *Pogonornis bidentatus friedmanni* (p. 124) for a barbet from north Angola.

British Birds. XXVI, No. 7. December, 1932.

Contains an extended report on recovery of banded birds and many local notes.

British Birds. XXVI, No. 8. January, 1933.

Experiments in Color Sense in Birds. By George Marples.

British Birds. XXVI, No. 9. February, 1933.

Some Nesting-Habits of the Kingfisher. By B. B. Riviere.

Notes on North Atlantic Birds. By Cynthia Longfield and Ruth Blezard.—On crossing from Liverpool to Quebec.

British Birds. XXVI, No. 10. March, 1933.

The Great Crested Grebe Enquiry (1931): Scotland. By T. H. Harrisson and P. A. D. Hollom.

Birds of Inner London. By A. H. MacPherson.

List of banded birds and obituary of Thomas A. Coward.

The Avicultural Magazine. (Fourth series) X, No. 12; XI, Nos. 1 and 2. December, 1932; January and February, 1933.

Colored plates of Banded Finches (*Stizoptera*) (Dec.) and *Pitta maxima* (Jan.) and photograph of the Flightless Cormorant (*Nannopterum*) (Feb.)

Early Days of the Avicultural Society (Jan.).

All numbers are replete with breeding records in captivity and other matter of importance to the aviculturist.

The Oologists' Record. XII, No. 4. December, 1932.

An interesting résumé of bird and game protection in the United States and England and the status and attitude of "protective" organizations.

Field Habits, Haunts and Nesting of the Raven. By D. Nethersole-Thompson.—In Great Britain.

The Mathematical Side of Oölogy, as Applied to the Study of Cuckoos' Eggs. By M. Schönwetter.

Many notes on breeding habits, etc.

The Emu. XXXII, Part 3. January, 1933.

On the Occurrence of *Psophodes nigrogularis* in Victoria. By F. E. Howe and J. A. Ross.—With a description of a new race *P. n. leucogaster* (p. 147). There is a full history of the bird and its rediscovery after being thought extinct; also a colored plate of the new race by Cayley.

Proceedings of the Thirty-first Congress of the R. A. O. U. By C. E. Bryant.

Tasmania—A Faunal Region. By A. G. Campbell.

The Camp-Out at Coles Bay and the Birds Observed. By C. E. Bryant. —This field trip is an important part of the annual meeting; about seventy species of birds were observed.

A Review of Tasmanian Ornithology. By Clive E. Lord, President of the R. A. O. U.

An Early Natural History Magazine. By K. A. Hindwood.—The 'Naturalist's Pocket Magazine,' 1799, containing a picture of the Emu and the Black Swan.

Many notes on Australian birds.

The South Australian Ornithologist. XII, Part 1. January, 1933.

Birds of Salt Creek District and Some Island Sanctuaries in the Coorong, both by J. Sutton, illustrated with photographs.

Nesting of the Gull-billed Tern. By W. Cain.—Near Port Augusta.

Alauda. (series II) IV, No. 4. October–December, 1932. [In French.]

The ends and object of Quadrinomial Nomenclature. By A. Laubmann. —Proposes a binomial "Formenkreis" under which are trinomial "Formengruppen" and under these, again, are the quadrinomial "subspecies." This simply amounts to the division of subspecies into groups and burdening our nomenclature with an additional name to indicate this, just as some have introduced a subgeneric name, in brackets, but without any intention of making it an actual part of the name. Our nomenclature seems complicated enough as it is without adding to its burdens.

A Supplement to my Study of Geographic Variation in *Bubo bubo.* By G. Dementieff.—*B. b. omissus* (p. 392) Askhabad, and *B. b. baschkirikus* (p. 395) "Suschkin mss," environs d'Ufa, are described as new.

Nidification of *Corvus corone* at the Port of Geneva. By R. Poncy.

The Voice of the Owls of Middle Europe. By H. Stadler.—Musical and syllabic notation used.

Birds of the Azores (completed). By J. deChavigny and N. Mayaud.

Many notes on various species and an examination of flourescence of egg shells.

L'Oiseau. (nouv. ser.) III, No. 1. 1933. [In French.]

A Pheasant Mutation—*Phasianus* mut. *tenebrosus.* By Marquis Hachisuka.—With colored plate.

The Grebes of Madagascar. By J. Delacour.—With a colored plate.

Contribution to a Study of the Birds of Oubangui-Chari (French Equatorial Africa.) By L. Blancou.—A detailed account of the various species; another list by F. Edmond-Blanc, pp. 87–89.

Notes from Spitzbergen. By G. Olivier.—An annotated list with several photographic illustrations.

Notes on the Birds of the Philippines. By Marquis Hachisuka (continued).—With a colored plate of Kingfishers.

Many notes and articles on aviculture including one on the American Bluebird in captivity, called "LeRosignol Bleu d'Amerique!"

Journal für Ornithologie. LXXXI, Heft 1. January, 1933. [In German.]

The Goldfinch as a Drinker. By J. A. Bierens de Haan.

Psittacosis. By B. Grzimek.

The Breeding of the Golden-eye in Mecklenberg and Holstein. By R. Kuhk.

The Nesting Habits of the Goshawk. By H. Siewert.—With twelve remarkably fine plates.

The White Stork in the Lubeck District. By W. Hagen.

Troglodytes Studies. By F. Solomonsen.—Recognizes seven subspecies of *T. troglodytes* in northern Europe.

Observations on the Flight of Birds and the Relation of Wing and Tail Form to the Art of Flying. By K. Lorenz.—A lengthy discussion of the subject with many photographs and sketches of flying birds.

The Stomach and Intestines of the Fruit Pigeons. By G. Cadow.

Ornithologische Monatsberichte. XLI, No. 1. January–February, 1933. [In German.]

A Bird's Nest with a Closing Entrance; the Nest of *Anthoscopus caroli.* By Walter Hoesch.

The Influence of a Fish Diet on the Life History of the Terns. By Nicolaus Peters.

A List of the Intestinal Parasites of Some Birds of the Elbe at Hamburg. By Nicolaus Peters.

Some New Birds from China. By K. Y. Yen.—*Cinclus pallasii sini* (p. 15) Kweichow; *Tribura tacsanowskia chui* (p. 15) and *T. t. thoracica saturata* (p. 16) Kwangsi and *Picus canus stresemanni* (p. 17) Kansu.

The Bill-knob of the Oidemiae. By George Steinbacher.—Cross section diagrams for the several species of Scoter.

Der Vogelzug. IV, No. 1. January, 1933. [In German.]

The Mass-Migration of the Bohemian Waxwing (*Bombycilla garrula*) in Middle Europe in 1931–32. By Ernst Schüz.

The Physiology of the Migratory Impulse. By H. Schildmacher.—Experiments with female sex-hormones.

Locality Influence in Larus ridibundus as shown by Bird-banding. By G. Technau.

Beiträge zur Fortpflanzungsbiologie der Vögel. IX, No. 1. January, 1933. [In German.]

Observations on the Cormorant Colony at Lekkerkerk. By Fr. Haverschmidt.—An extended study with five excellent plates from photographs of the nesting colony from life.

On the Extension of the Breeding Range of *Passer domesticus* to the North. By Hermann Grote.

A Summary of Stork Statistics in Schleswig-Holstein in the Years 1930–1932. By Walther Emeis.

The Young of *Dupetor flavicollis*. By P. O. Meyer.

Vögel Ferner Länder. VI, Heft 4. 1932. [In German.]

Birds of Distant Seas. The Albatrosses. By H. von Boetticher.

Hawaiian Birds and the Use of their Feathers in Earlier Times. By A. Weber.—With illustrations.

Also some articles on African birds and on birds in the Berlin Zoo, as well as notes on aviculture.

Archives Suisses d'Ornithologie. I, Fasc. 2. January, 1933. [In German or French.]

Some Observations on the Summer Avifauna of Mayens de Mondzeur (Valais). By R. Poncy.—With several beautiful halftones of the region.

The Storks of the Canton of Zurich. Statistics for 1932. By M. Bloesch.

A Contribution to a Study of Bird Migration over the Alps. By O. Meylan.

Der Ornithologische Beobachter. XXX, Hefts 2, 3 and 4. November, December, 1932, and February, 1933. [In German or French.]

The Food of the Bohemian Waxwing in the Province of Leningrad. By J. J. Ssokolow (Nov.).

A Review of the work of the Swiss Society for Bird Study and Protection, for the year 1931–32 (Dec.).

Old and New Information on the Rough-legged Hawk (*Buteo lagopus*). By E. Schüz and G. Technau.—Distribution, molt, migration, etc. (Feb.).

On the Mathematical Treatment of Biological Problems in Ornithology. By H. Noll and U. A. Corti (Feb.).

Le Gerfaut. XXII, Fasc. 3. 1932. [In French.]

Mainly devoted to a summary of observations in Belgium for the year, May 1931–May 1932, with an annotated list of species.

On Pernis apivorus orientalis of Southern Siberia. By W. N. Scalon.

Also notes on Bird-banding.

Kocsag. V, No. 1–2, 1932. [Mainly in Hungarian with brief résumé in German.]

Some Notes on Breeding Greenshanks (*Tringa nebularia*) in Scotland. By W. M. Congreve. [In English.]

On the Avifauna of the County of Bars, Hungary. By E. Dudich.—With an annotated list.

The Government Nature Reservation at Astrachan on the Volga Delta.

The Bohemian Waxwing, Wild and in Captivity. By L. v. Dobay.

Cractes infaustus buturlini is proposed by W. S. Stachanow for *Perisoreus infaustus sibericus* (Boddaert); there is also an obituary of Dr. Julius v. Madarasz, and many local notes.

Kocsag. V, Nos. 3–4. 1932. [Mainly in Hungarian with brief résumé in German.]

Diurnal Birds of Prey of the "Siebenburges." By L. v. Dobay.—Short Life histories.

Observations on the Hoopoe in 1931–1932. By H. Dorning.

Many local notes.

Danske-Fugle. XIII, No. 25–26. 1932.

Some pages of the Black Stork's History in Denmark. By P. Skovgaard. —Notes on single nests with excellent photographic plates.

Birds Banded at Foreign Stations captured in Denmark.

Ornis Fennica. IX, Nos. 1, 2, 3, 4. 1932. [In Finnish or German.]

Pontus Palmgren, leading contributor, discusses in No. 1: Ornithological Fields of Research; Birds and their Breeding Territory; On the Biology of Species of Fringilla; in No. 2, An Ecological Analysis of the Nesting of *Fringilla coelebs*, *Regulus regulus* and *Carduelis spinus;* On Food of Birds and Methods of investigating Stomach Contents; in No. 3, Variation in Intensity of Bird Song.

Other articles are: On the Movements of the Rough-legged Hawk. By J. Snellman (No. 1), Bird Names from Lapland. By E. Marikallio (No. 3), and an extensive study of the sea birds of the bird refuge of Aland. By Sven Nordberg (No. 4).

Ardea. XXI, No. 1–2. 1932. [In Dutch.]

A Comparative Study of Gulls and Terns. By N. Tinbergen.—With an excellent photograph of gulls on the wing.

Birds and Flowers. By A. Spennemann.—A diary of observations in Java.

Some Observations on the Mating Biology of the Avocet. By G. F. Makkink.

The 1931 Invasion of Bohemian Waxwings. By F. Haverschmidt.

Migration Notes in Holland.

Ardea. XXI, No. 3–4. 1932. [In Dutch.]

On the Food of Accipiter nisus. By L. and N. Tinbergen.

The Spotted Oriole (*Oriolus chinensis maculatus*) of Java. By A. Spennemann.

Organ of the Netherlands Ornithological Club. V, Nos. 2 and 4. October, 1932, and January, 1933. [In Dutch.]

The Breeding Birds of Wieringen. By P. G. Op de Coul. (No. 2.)

Some Notes on Stork (*Ciconia ciconia*) Nests in the vicinity of Kampen. By C. G. B. TenKate. (No. 2.)

Some Remarks on the Javan Peafowl. By A. Hivernon. [With summary in English]. (No. 2.)

Summer Observations on Regulus Brehmicus at Zut fen. By G. van der Meer. (No. 3.)

Tringa Migration. By P. Bouwe Jansen. (No. 3.)

On the Breeding of *Pernis apivorus apivorus*. By A. B. Wigman. (No. 3.)

There is a record of *Turdus dauma aureus* for Netherlands and many other notes.

OBITUARIES.

Dr. William Jacob Holland, an Associate of the Union since 1899, and Director Emeritus of the Carnegie Museum at Pittsburgh, died on December 13, 1932, in the eighty-fifth year of his age.

While always interested in birds Dr. Holland, we believe, made but one contribution to ornithological literature—a report on a collection of east African birds (*Ann. Carnegie Mus.*, III, Aug. 1905). His researches were almost entirely in other fields, notably in entomology—especially the lepidoptera, and in vertebrate paleontology, in which branches of zoology his name was familiar throughout the scientific world, while his broad learning and culture made him a prominent figure in educational and intellectual activities not only in Pittsburgh but in the country at large where he was associated with the leading scientific and historical societies.

He was born at Bethany on the island of Jamaica, on August 16, 1848, of Moravian parentage, his father having come to the West Indies as a missionary, from Salem, North Carolina, where the family had long resided. He was educated at the Moravian College and Theological Seminary in Bethlehem, Pennsylvania, and at Amherst College, where he graduated in 1869. Later he studied at Princeton Theological Seminary and entered the Presbytery, becoming pastor of the Bellefield Presbyterian Church, in Pittsburgh. In the meantime he had engaged in teaching and in medical studies, while his spare time was devoted to natural history. He was zoölogist on the U. S. Eclipse Expedition to Japan in 1887 and in 1891, became Chancellor of the Western University of Pennsylvania (later University of Pittsburgh) which position he held, until, at the request of his friend Andrew Carnegie, he assumed the directorship of the recently founded Carnegie Museum, in 1898. Here he was able to give his scientific activities full sway and published largely in his chosen fields, his 'Butterfly Book' and 'Moth Book' becoming standard works.

He also directed the paleontological expeditions of the museum in the western states and among his discoveries was the great dinosaur, *Diplodocus carnegiei*, one of the outstanding features of the museum, and of which replicas were presented to many of the leading museums of the world. Dr. Holland was also the founder and first president of the American Association of Museums and took great interest in museum administration.

His scientific attainments were widely recognized both by honorary degrees from many of the universities of America, as well as St. Andrews of Scotland, and by decorations from many of the countries of Europe. There have been few careers so varied and so extended as Dr. Holland's; standing as he did as a leader in scientific research and in the cultural life of his city for over fifty years.—W. S.

John Dymond, Jr., an Associate of the American Ornithologists' Union since 1929, and a leading conservationist of Louisiana, died in New Orleans, Nov. 12, 1932. He was the son of State Senator Dymond and Nancy

Elizabeth Cassidy Dymond and was born in 1867 in New York City, where he spent his early childhood. He graduated from Tulane University in New Orleans in 1888 with the degree of A.B., and received his degree in law from the same institution two years later. Upon graduation he entered on the practice of his profession, and at the time of his death was senior partner in the firm of Dymond and Levy. He successfully represented Louisiana in its contest with Mississippi over the State boundary line and took part in a number of suits involving trapping interests. From 1920 to 1924 he represented Plaquemines Parish in the State legislature. In addition to various business and social activities he was an ardent sportsman, one of the organizers of the Delta Duck Club, and served as its president until his death. He was also a past president of the Louisiana chapter of the Izaak Walton League.—T. S. P.

Joseph Edward Hallinen, an Associate of the American Ornithologists' Union since 1919, died after a brief illness in the hospital at Hobart, Okla., Feb. 13, 1932, in the 73rd year of his age. He was born at Champaign, Ill., March 23, 1859, and at an early age seems to have developed an interest in natural history. In 1891 and 1892 he served as assistant on the Illinois Relief Map Commission, in the latter year as assistant in the State Laboratory of Natural History, and during the summer of 1893 as an assistant on the U. S. Fish Commission.

He graduated from the University of Illinois in 1894 with the degree of B.S. and was a graduate student in biology at the University of Chicago during the following year. During the next five years he taught science in the township high school at Ottawa, Ill., and was science teacher in the high school at Fort Smith, Ark., from 1900 to 1902. In 1902–03 he was a tutor in physics at the University of Oklahoma, and in 1916 taught biology for one year in the University of Chicago.

With the opening of the Kiowa-Comanche area in June, 1901, Mr. Hallinen went to Oklahoma to take part in the drawing of lands at El Reno and took up a homestead of 160 acres about 3 miles southeast of Cooperton close to the Wichita Game Preserve. Here he lived the life of a recluse for 31 years until his death, entirely alone and without making any effort to cultivate or improve his property beyond building a single room house in which he lived, worked and kept his library. He maintained his homestead as a wild life refuge. He once granted permission to a neighbor to pasture a little stock on it but even this privilege was discontinued when he found that the animals had eaten some plant which he had not named. In later years he acquired an automobile with which he did his business in neighboring towns. He acquired a library of some 5000 books and pamphlets, and subscribed to 20 or more magazines. He prepared a work on the birds of Oklahoma, but this is still unpublished, and apparently he never published any of his observations while a resident of the State.

His library, including a set of 'The Auk,' has been acquired by the library of the University of Oklahoma at Norman.—T. S. P.

NOTES AND NEWS.

SEMICENTENNIAL Jubilee of the A. O. U.—The fifty-first Stated Meeting of the American Ornithologists' Union, marking the fiftieth anniversary of the organization, will be held in New York City, November 13–16, 1933. General headquarters will be at the American Museum of Natural History.

Convention headquarters will be at the Hotel New Yorker, 34th Street at Eighth Avenue. This hotel is connected with the American Museum by the new Eighth Avenue subway, a trip of about ten minutes, and has entrances directly into each building, as well as into the Pennsylvania railroad station.

Mr. David Olmstead, of the Hotel New Yorker, is an Associate of the Union, and was secretary of the local committee during the Detroit meeting in 1931. He is therefore fully conversant with the needs of members and will give his personal attention to all communications.

The Chairman of the Local Committee is Dr. Frank M. Chapman, Curator of Birds in the American Museum. Various sub-committees have been appointed, and plans are under way which, it is hoped, will make our Fiftieth Birthday party a memorable occasion.

The Committee in Charge of Arrangements is planning an exhibit of works of art in which birds are the subjects, including paintings, drawings, and sculpture. There will also be a section for the display of bird photographs. All persons, whether or not members of the Union, are invited to contribute samples of their work for this exhibit.

The Chairman of the Sub-committee on the Exhibit is Mr. Courtenay Brandreth, who may be addressed in care of the Museum. Full power of decision regarding the hanging of pictures, etc., will rest with the Committee, which may limit the number of works of any single exhibitor as seems expedient.

All persons wishing to exhibit are requested to communicate with Mr. Brandreth at the earliest possible date. Sculpture should be sent only after specific arrangements have been made with the Committee. Paintings and photographs may be shipped to the Museum, and a full and specific list, which includes the value of each item for insurance purposes, should be sent in advance to the Chairman.

All exhibits should reach New York not later than the last week in October. They should be prepaid and addressed to the American Museum of Natural History, 77th Street and Central Park West, New York City, and should be marked "A. O. U. Exhibit." The Local Committee will pay for insurance on the pictures from the time they reach New York until they are returned to their owners, and will also defray the cost of repacking and shipment.

Members who expect to contribute papers to the scientific program of the meeting should send their titles to the Secretary of the Union, 1939

Biltmore Street, Washington, D. C., *not later than October 15*, and should submit with each title an abstract of not more than 200 words.

Our members are well aware of what the A. O. U. has done for ornithology and how the small band of devoted ornithologists which assembled in New York, in 1883, labored for the success of the organization. As a tribute to the five remaining founders—Charles F. Batchelder, Nathan Clifford Brown, Albert K. Fisher, C. Hart Merriam, Robert W. Shufeldt and to the memory of the others who have passed on, it would seem that each one of us should make such sacrifice of time and convenience as is necessary to be present at this semicentennial meeting. Needless to say everyone will be fully repaid in the enjoyment of the occasion and the stimulus which A. O. U. meetings always give to our interests and activities.

Let us make it truly a "Jubilee Meeting."

MANY members of the Union, especially authors who have submitted papers for publication, are aware of the fact that we have on hand many more contributions than funds with which to print them, and that this condition does not seem to improve. It therefore seems but fair both to the ever patient authors, whose papers are on the waiting list, and to those who are contemplating the submission of papers now under way, to declare a sort of "moratorium" on 'Auk' papers.

The editor has arranged those on hand in three lots according to date of receipt, each containing about as many pages as he sees his way to publish in the next three issues, with the funds now in sight. Authors will all be notified of the number in which their papers will appear so that if they have an earlier channel of publication open to them they may withdraw them. If no papers are withdrawn no new ones can be published until the April issue of 1934, except the necessary reports for 1933, for which reservation has been made. Additional contributions, except of course for 'General Notes,' will be accepted subject to this condition.

If additional funds develop the expiration of the "moratorium" may be advanced to the January 1934 issue.

All 'General Notes' which do not exceed 700 words will be accepted and published in the next issue if received at least one month in advance, with the provision that the editor be allowed to revise them in the interest of brevity without altering the facts presented. Longer 'General Notes' may have to await a subsequent issue of the journal.

The review of literature is being condensed as much as possible consistent with a proper notice of publications sent to us for that purpose and reports, obituaries, etc., will be cut to avoid all unnecessary matter. With the list of Members in the April issue, concerning the publication of which we have received many protests, the editor has no discretion as it is ordered to be printed annually by the Council unless such order is suspended by that body but if funds could be secured to cover the expense of this list as well as the annual reports of the secretary, nearly one hundred additional pages per year could be devoted to ornithology.

ANNUAL Meeting of the Virginia Society of Ornithology. The Virginia Society of Onithology held its fourth annual meeting recently on January 20–21, at Norfolk. Dr. J. J. Murray read a paper on the history of ornithology in Virginia, and Mr. Chas. O. Handley gave the results of a study of the abundance of Ruffed Grouse in the state. A resolution was passed favoring legislation that would provide a closed season on the grouse in counties in the Piedmont and eastern parts of the state where the numbers of grouse are much diminished. A number of other papers were presented by other members.

The features of chief interest were the first annual dinner for members, and a field trip to the private game and wild fowl preserve of Mr. W. E. Cory of New York, where over fifty Whistling Swans were seen, as well as thousands of other water fowl.

All officers were re-elected. They are as follows: President, Prof. Ruskin S. Freer, Lynchburg; Vice President, Mr. Chas. O. Handley, Ashland; Secretary, Dr. Florence Hague, Sweet Briar; Treasurer, Mr. John B. Lewis, Amelia; members of the Executive Committee, Mr. M. G. Lewis, Salem, and Mr. A. O. English, Norfolk. Dr. J. J. Murray of Lexington was reappointed Editor of 'The Raven', bulletin of the Society. The meeting for 1934 will be held at Alexandria.—Ruskin S. Freer.

THE DELAWARE Valley Ornithological Club held its forty-third annual meeting at the Academy of Natural Sciences in Philadelphia, on January 5, 1933. Officers for the ensuing year are President, Julian K. Potter, Vice-President Arthur C. Emlen; Secretary, John A. Gillespie and Treasurer, Henry T. Underdown. Meetings have been held regularly twice a month with the exception of June to September, and the usual field trips have been taken.

THE BALDWIN Bird Research Laboratory has circulated 3000 copies of an excellent paper by Baldwin, Kendeigh and Franks, 'The Protection of Hawks and Owls in Ohio,' and 15000 copies of a brief abstract of the same on a single sheet. These publications have done much to stimulate interest in saving these birds from the extinction which the hunters of the country seem determined shall overtake them. If the latter would only pause to study the problem as set forth in this and many other publications surely they would realize their error and the folly of putting their personal opinions against the judgement of the trained men in the Biological Survey and the various State laboratories.

OUR HONARARY Fellow M. Jean Delacour is about to publish in 'L'Oiseau' a check-list of the birds of Russia and kindly offers to provide copies for any of our members who desire them at a merely nominal cost, but he must know how many copies will be desired. Anyone who desires to secure a copy should communicate at once with Dr. Ernst Mayr, American Museum of Natural History, 77th St. and Central Park, W., New York.

THE AUK

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ORGAN OF THE AMERICAN ORNITHOLOGISTS' UNION

Edited by Dr. Witmer Stone

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PHILADELPHIA, PA.

To whom all articles and communications intended for publication and all books and publications for review should be sent.

Manuscripts for leading articles must await their turn for publication if others are already on file, but they must be in the editor's hands at least six weeks before the date of issue of the number for which they are intended, and manuscripts for 'General Notes,' 'Recent Literature,' etc., not later than the first of the month preceding the date of issue of the number in which it is desired they shall appear.

Twenty-five copies of leading articles are furnished to authors free of charge. Additional copies or reprints from 'General Notes,' 'Correspondence,' etc., must be ordered from the editor when the manuscript is submitted.

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THE AMERICAN ORNITHOLOGISTS' UNION AT A GLANCE

ORGANIZED—in New York City, Sept. 26, 1883: Incorporated—in Washington, D. C., Nov. 15, 1888.

OBJECTS: "The advancement of its members in Ornithological Science; the publication of a journal of Ornithology and other works relating to that science; the acquisition of a library; and the care and collection of materials relating to the above objects, under the restrictions and regulations established in its By-Laws."

OFFICERS: President, two Vice-Presidents, Secretary, Treasurer, and 7 Councilors. Officers and ex-Presidents are ex-officio members of the Council.

MEMBERS: Associates (unlimited), Members (125), Corresponding Fellows (100), Honorary Fellows (25), Fellows (50), Retired Fellows, Patrons. (Total membership, 1960 in 1930.)

DUES: Annual—Associates $3, Members $4, Fellows $5.
Life-Associates $50, Life-Members $75, Life-Fellows $100; Patrons $1000.

INCOME: From annual dues, sale of publications, life memberships, and contributions.

MEETINGS: Annual—usually in November; sometimes in October.

PUBLICATIONS: 'The Auk,' a quarterly journal in 47 volumes, with 3 general indexes: 1876–1900, 1901–1910, 1911–1920. 'Check List of North American Birds': 1st ed., 1886; 2d ed., 1895; 3d ed., 1910; 4th ed., 1931. 'Code of Nomenclature,' 1886; Revised ed., 1908. (See Auk, '24, 142.)

BREWSTER MEDAL: The proceeds of a fund of $7250, established in 1919 by the friends of William Brewster, awarded biennially to the author of the most important work relating to the birds of the Western Hemisphere published during the preceding six years.

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THE AUK IN PUBLIC LIBRARIES—Auk, '30, 609.

BIOGRAPHIES OF DECEASED MEMBERS—Auk, '30, lxvi.

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Palmer, T. S., 'The A. O. U.,' Am. Mus. Journal '18, 473; 'Looking Backward,' Auk, '24, 139.

MEETINGS: Auk, '24, 143; '30, back cover of October number.

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